Engineering Kinship:
Genetic Technologies, Economic Speculation, and the Queer Body

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For the 1991 *Star Trek* VHS tape;

Garry-McCoy, Tiffany-Spock, and Jessica-Kirk

ABSTRACT

Linking the critical humanities to the biological sciences, this dissertation investigates how progressive, queer, and anti-racist techniques and technologies of kinship emerge in Progressive Era eugenic cinema and return, reformulated, in twenty-first-century sci-fi film and television. Drawing on research conducted at the Library of Congress, the Wangensteen Health Sciences Library, and the John E. Allen Archives, I contest the traditional narrative that American eugenics was an exclusively right-wing movement by revealing the surprising appearance of several radical elements—feminism, progressive economics, and social welfare reform—within this otherwise pernicious social project. I argue prominent figures as diverse as the African-American physician Dorothy Ferebee and the Sapphic writer Edith Ellis co-opted eugenic discourses to find support for their social struggles. Today, these progressive strands of eugenic ideology have been de-radicalized through the shift from state-sponsored eugenic projects to corporation-driven geneticism. The new genetics movement has adopted neoliberal theories of growth to overcome economic and ecological limits. Pairing *ReGenesis* and *Orphan Black* with an analysis of gene patenting cases brought before the U.S. Supreme Court, I argue this speculative future veers away from the progressives' valuation of queer difference by employing technological means and legal strategies to compel domestic normativity. Divided into two parts, this dissertation offers a comparative analysis of the ideological inheritance left to what I call "New Eugenic Media" from its counterparts in the Progressive Era through a critical examination of two collections, separated by a century: the U.S. Department of War's hygiene films from 1915-1922 and sci-fi film and television from 2000-2015.

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INTRODUCTION:

WHAT CROP HAS SPRUNG FROM THAT EUGENIC SEED?

Khan Noonien Singh: "I've gotten something else I wanted. A world to win. An empire to build."

Mr. Spock: "It would be interesting, Captain, to return to that world in a hundred years and learn what crop has sprung from that seed you planted today."

Captain Kirk: "Yes Mr. Spock, it would indeed."

— *Star Trek: The Original Series*, "Space Seed," season 1, episode 22 (1967)

It is in this first season episode "Space Seed" that *Star Trek* introduces us to Khan, the terrestrial ruler *Rolling Stone* proclaims is the series' #1 "villain for the ages." A product of "controlled genetics," Khan is a superhuman warlord who conquers Asia and the Middle East during Earth's third and final global conflict—the Eugenics Wars of the 1990s. In 1996, Khan and approximately eighty of his fellow supermen are put in suspended animation aboard Botany Bay and launched into space, where they remain until the crew of the Starship Enterprise discovers and revives them nearly two centuries later. Once aboard the Enterprise, Khan attempts a mutiny but is ultimately subdued by the ship's crew. Instead of punishing him by death, Captain Kirk sends Khan and his people to the vast wilderness of Ceti Alpha V to build a new civilization. In the episode's final scene, Khan is directed off the ship, leaving Kirk and his senior officers alone in the floating conference room. Spock, the ever-logical Vulcan, reasons that it would be informative to return to Ceti Alpha V in one hundred years to "learn what crop has sprung from that seed" they planted there today. It is precisely this question that drives my dissertation project—not about the crops that have sprung on the fictional Ceti Alpha

V, but about those crops that have sprung on our own planet Earth, a hundred years after the first seeds of eugenic ideology were sown into public consciousness. It is by harvesting these ripe crops that we can ascertain how eugenic ideology has been retooled in the twenty-first century through its cultural rebranding as genetic engineering. This investigation is pertinent today because, contrary to what was once popular belief, we have *not* left eugenics behind. In the words of the Critical Art Ensemble,[1] "eugenics never died after its failed implementation during the early portion of the twentieth century. It has merely been lying dormant until the social conditions for its deployment were more hospitable" (119). Over the last three or four decades, the proliferation of the consumer economy, the rise of the nuclear family, and the shift in politico-economic power from the nation-state to global, corporate networks have, together, provided the fertile soil in which public, eugenic consciousness has taken hold. Genetic technologies from IVF and stem cell transplants to synthetic DNA and gene therapy have become naturalized as a routine part of the medical industry. It is this transition—from eugenics to genetics—that serves as the focus of *Engineering Kinship*. My object of study in this project is a discourse of eugenics, at the intersection of gender and sexuality, as it is articulated in a variety of cultural materials including film, television, trade journals, academic periodicals, legal documents, and medical texts. Audio-visual media, in particular, provide a vivid dramatization of eugenic discourse's evolution due to the co-

[1] Formed in 1987, the Critical Art Ensemble (CAE) is a collective of five tactical media practitioners of various specializations: computer graphics and web design, book art, performance, photography, and film/video. Focusing on the intersections among art, critical theory, and political activism, the CAE works to create fissures and disruptions in authoritarian culture. The primary objects of the CAE's critique include cyberculture, biotechnology, and U.S. defense policy. For more information, see: http://www.critical-art.net/.

emergence of cinematic and scientific technologies at the turn of the twentieth century, as well as the methodological overlap between digital media and genetic engineering technologies today. Divided into two parts, *Engineering Kinship* offers a comparative analysis of the ideological inheritance left to what I call "new eugenic media" from its counterparts in the Progressive Era through a critical examination of two collections, separated by a century: the social hygiene films produced by the U.S. government from 1914-1922 and genetic sci-fi film and television released from 2000-2015.

With forced sterilization, racism, classism, and the atrocities of Nazi Germany still etched in our collective consciousness, the term "eugenics" has pejorative connotations. It is used by historians and laypersons alike to dismiss a critical examination of the past and to caution us against twenty-first-century incarnations of genetic engineering which portend an Orwellian future.[2] While it would be facile to simply warn against the dangers of eugenic thinking, I instead argue that we must—to paraphrase Theodor Adorno's indictment of tradition—learn to "hate it properly": that is, rigorously and carefully, with a full understanding of its past and present conjuncture. In

[2] For examples of the ways in which historians and theorists discuss the United States' deployment of eugenics in pejorative terms, investigating its regressive aspects without a careful consideration of its intersection with Progressive Era welfare reforms, public education initiatives, feminism, and sexual liberalism, see the following: Cohen, Adam. *Imbeciles: The Supreme Court, American Eugenics, and the Sterilization of Carrie Buck*. New York: Penguin Books, 2017; Black, Edwin. *War against the Weak: Eugenics and America's Campaign to Create a Master Race*. Washington D.C.: Dialog Press, 2012; Lombardo, Paul A. *A Century of Eugenics in America: From the Indiana Experiment to the Human Genome Era*. Indianapolis: University of Indiana Press, 2011; Pernick, Martin. *The Black Stork: Eugenics and the Death of 'Defective' Babies in American Medicine and Motion Pictures since 1915*. New York: Oxford University Press, 1999. Certainly, these accounts of eugenics do the important work of discussing its troubling history of racial and class based discrimination, namely in the context of legal cases and motion pictures. In fact, I owe a great debt to the thorough, historical work of Martin Pernick, who was also generous enough to give me access to his personal collection of eugenics films for the purposes of this project. My argument is not that these accounts are wrong but, rather, that they are incomplete. It is my assertion that we must examine eugenics' regressive and progressive aspects together in order to fully understand the Progressive Era eugenics movement, particularly as it is relevant to the contemporary resurgence of eugenic ideology in the context of genetic engineering.

Minima Moralia, when Adorno declares that "one must have tradition in oneself to hate it properly" (57), he is not using the word tradition colloquially, as an antonym for modernity but, rather, as a synonym. Modernity, for Adorno, has come to stand in for what was once tradition, for the ideological infrastructure that we accept uncritically, as though it were fact rather than belief or received practice. Eugenics, as a thoroughly modern ideological product, is an aspect of this tradition—an aspect of capitalist modernity, or what Jürgen Habermas calls the "utopian ideological double character of bourgeois culture" (352). "To hate tradition properly" is therefore to intervene in the reification of tradition by exposing its inner workings. It is, in the words of Neil Lazarus, "to mobilize its [tradition's] own protocols, procedures, and interior logic against it—to demonstrate that it is only on the basis of a project that exceeds its own horizons or self-consciousness that tradition can possibly be imagined redeeming its own pledges" (7). In other words, the only way to fight tradition is to use tradition against itself and, in the specific case of eugenics, to think *with* eugenics *against* eugenics.[3] We must come to understand both the evolution of eugenic discourse and our own, ingrained, eugenic thinking because to "hate it properly" is not to dismiss it outright but, rather, to hold our visceral distaste for eugenics' regressive elements in productive tension with a consideration of its enabling, progressive ones.

When viewed retrospectively, the first eugenic wave, advanced in the United States under the more innocuous title "social hygiene," is often haphazardly lumped together with its World War II counterpart on the assumption that it was rooted in the

[3] I am here paraphrasing Neil Lazarus when he asserts that Adorno wants us to "think *with* modernity *against* modernity" (6).

same anti-social ideology. This popular, anachronistic reading fails to take into account the fact that eugenics is a living discourse, continually evolving with and through its material conditions of possibility. In fact, at its inception, eugenics in the United States was not exclusively a right-wing or ultra-conservative movement but, instead, a curious hybrid of several different social, economic, and political discourses that gained traction during the reform-oriented Progressive Era.[4] Defined by an ethos of social utility, the years leading up to and during World War I saw sweeping changes in how the government envisioned its role in social life. The Rooseveltian state saw itself as protecting the rights of individuals while using public education and social programming to lift up the least among us so that we, as a nation, might prosper.[5] This vision of the United States is rooted in anthropological theories of kinship, which conceived of the nation itself as a family unit. In this project, I investigate how progressive, queer, and anti-racist technologies of kinship emerge in Progressive Era eugenic cinema and then return, reformulated, in twenty-first-century sci-fi film and television. My research contests the traditional narrative that eugenics in the United States was a strictly regressive movement by revealing, through a rare archive of hygiene films, the surprising

[4] For a philosophy of eugenics and progressivism put forward by the American Social Hygiene Association, see: Charles Eliot, "American Social Hygiene Association." *The Journal of Social Hygiene* 1 (1914): 1.

[5] For an account of the philosophy of the welfare state in President Theodore Roosevelt's own words, see the following: Roosevelt, Theodore. *The Autobiography of Theodore Roosevelt*. New York: Seven Treasures Publications, 2009; "Inaugural Address of Theodore Roosevelt: Saturday March 4, 1905." The Avalon Project: Documents in Law, History, and Diplomacy. Yale Law School; "Women's Rights; and the Duties of Both Men and Women." *The Outlook*. February 3, 1912; *The Practicability of Equalizing Men and Women before the Law*. Thesis. Harvard University, 1880.

For a thorough explanation of the discourse of social uplift in Progressive Era America, particularly as it applies to cinema, see: Miriam Hansen, *Babel and Babylon: Spectatorship in American Silent Film.* Cambridge: Harvard University Press, 1994, 41.

emergence of several radical elements—progressive economics, feminism, and social welfare reform—within this otherwise pernicious social project. Teasing out the complexities of eugenic discourses to explain how progressive ideas co-existed with reactionary ones, I argue that many gender, sexual, and racial minorities—as diverse as the Sapphic writer Edith Ellis and the African American physician Dorothy Ferebee—co-opted eugenic discourses to find support for their social struggles. Even more remarkably, with the advent of genetic engineering, many of these progressive strands of eugenic ideology have reemerged, but they are being de-radicalized through the shift from state-sponsored eugenic projects to corporate-driven geneticism. The new genetics movement has adopted neoliberal theories of growth to overcome economic and ecological limits via a speculative invention of the future. This speculative future, depicted in films and television shows from *Orphan Black* to *ReGenesis*, veers away from the progressives' valuation of queer difference through its reliance on technological means and legal strategies to compel domestic normativity. In its totality, *Engineering Kinship* not only interrogates the kinship relations between persons facilitated by advances in biomedical technology, but also the relationship among cinema, science, and economics as they work together to produce these two rich turn-of-the-century media collections.

The Myth of the Eugenic Engineer

In a nod to both Lévi-Strauss and Derrida, I title my project *Engineering Kinship* because of its theoretical resonance with the ideological platforms of both the Progressive Era eugenics movement and the genetic engineering programs of the twenty-first century. Believing they have the ability to alter the world through the implementation of concepts gleaned from scientific knowledge, both groups see themselves as the quintessential

embodiment of the Lévi-Straussian engineer. In *The Savage Mind*, Lévi-Strauss distinguishes the "bricoleur" from the "engineer" by asserting that the former works within a finite and closed system, recombining the available, existing materials or signs in whatever way suits his purpose, assembling them piecemeal as he adapts "whatever is at hand" by adding, deleting, substituting, and rearranging (17). He is therefore restricted to recycling existing meanings into new combinations; this is intellectual bricolage. The engineer, on the other hand, uses concepts instead of signs and this allows him to exceed the limits and boundaries imposed by existing civilization. This is because, "whereas concepts aim to be wholly transparent with respect to reality, signs allow and even require the interposing and incorporation of a certain amount of human culture into reality" (20). Able to break out of the closed system, the engineer creates new events rather than simply arranging pre-existing events into new structures. But while both the eugenicist and the genetic engineer believe themselves capable of working with objective, scientific concepts in order to step outside of the closed system and engineer a better human race, Derrida asserts in *Structure, Sign, and Play in the Discourse of the Human Sciences* that "the engineer is a myth" (6). It is impossible for a subject to be the absolute origin of his own discourse and to construct the totality of his language, syntax, and lexicon. "The notion of the engineer who had supposedly broken with all forms of bricolage is therefore a theological idea; and since Lévi-Strauss tells us elsewhere that bricolage is mythopoetic, the odds are that the engineer is a myth produced by the bricoleur . . . every finite discourse is bound by a certain bricolage, and that the engineer and the scientist are also species of bricoleurs" (6). In other words, the Progressive Era eugenicist and the twenty-first-century genetic engineer believe they are able to intervene

in the remaking of life from outside of culture (from the vantage point of "true" science) because their ideological platforms are mystified. In reality, they are bricoleurs, piecing together laid-down fragments of scientific, economic, and political thought with genetic and reproductive substance in order to create what they believe is a better human race. But, unlike the Lévi-Straussian bricoleur who recognizes that he is working within a finite system not of his own making wherein human culture has been interposed with reality, the Progressive Era eugenicist and the twenty-first-century genetic engineer are unaware of the mythical nature of their own programs. In fact, the very viability of their programs requires that they deny the subjective and ideological foundations on which they rely. Since the eugenicist and the genetic engineer are using scientific principles and technological tools to physically manipulate human substance, it is easy to overlook the ways in which social ideology is becoming incorporated into the human genome itself. The reality, though, is that these programs rely on political, economic, and legal strategies (tax incentives, intellectual property patents, insurance subsidies, sex education programs, etc.) to promote the reproduction of the so-called fit and to market perceived genetic "enhancements," both of which are, by definition, subjective. In each case, it is the movement's own cultural values that become the ideological criteria through which they determine who is fit to bear biological children, which viable human embryos are the most desirable and should therefore be implanted, which conditions constitute a "disease" that should be cured through gene therapy, and so on. Yet, the market (consumers, insurance companies, governmental regulators) depends upon the perception that these selective breeding practices and genomic enhancements carry tangible, medical benefits and are not simply arbitrary or cosmetic. The result is that increasingly invasive

scientific techniques are being used to manipulate human genetic material in order to bring our bodies, and those of our children, in alignment with our cultural values. It is in this way that eugenics, and genetic engineering in particular, does not benefit from what Derrida identifies as the most compelling aspect of bricolage: that there is "a critique of language in the form of bricolage, and it has even been possible to say that bricolage is the critical language itself" (6). In other words, while bricolage critiques culture, genetic engineering uses technological means to make human substance conform to normative cultural ideals and existing social hierarchies. It is therefore my objective in *Engineering Kinship* to provide a critique of the mythological foundations which underlie early eugenics and have been reworked in contemporary genetic engineering.

"Positive" Eugenics, the Eugenic Hero, and Technologies of Kinship

Like any dynamic movement, eugenics bears a trace of each of its previous incarnations. Yet, the parallels between American Progressive Era eugenics and the contemporary, U.S.-based genetic engineering movement bear indelible similarities which both differentiate it from its mid-century counterparts and call for a sustained, comparative analysis. The three defining similarities I will discuss are a grounding in what the early eugenicists themselves refer to as "positive" rather than "negative" eugenic practices,[6] the heroic eugenic subject, and the use of scientific technologies to create kinship relations that will engender their vision of biologically-based human progress.

[6] In context, the terms "positive" and "negative" eugenic practices are meant to refer to practices that facilitate reproduction and inhibit reproduction, respectively. Still, the terms "positive" and "negative" carry cultural associations which play out in the films and in eugenic discourse more broadly: "positive" evokes moral and emotional encouragement as well as positivism and empiricism, while "negative" evokes cynicism and semiotic or materialist modes of critique (i.e., negative semiotics and negation).

Before delving into these specificities, it is necessary to examine the historical development of eugenic thought. The field of eugenics can be traced back to British anthropologist Francis Galton who coined the term "eugenics" in his 1883 book *Inquiries into Human Faculty and Its Development,* which advances a series of eugenic hypotheses to explain and measure psychological phenomena including mental acuity, emotional states, and sexual instincts. Over the next two decades, eugenics gradually made its way from an obscure, academic postulate to a popular, Western culture phenomenon, with college courses in eugenics springing up across Europe and North America. The recognition of eugenics as a legitimate, scholarly discipline is perhaps best marked by the establishment of the first International Eugenics Conference on July 24, 1912, and, in the United States specifically, the founding of the American Social Hygiene Association (ASHA) and its affiliated *Journal of Social Hygiene* in 1914. This date, which marks the beginning of my early archive, coincides with the start of World War I in Europe, which necessitated the mass dissemination of hygiene information to combat the venereal disease epidemic spreading rampantly throughout the Allied armed forces. From 1914 to 1922, the U.S. government produced dozens of hygiene films under several auspices: the Department of War's Social Hygiene Division, the Department of Labor, and the Public Health Service. These didactic films seek to engender popular compliance with social hygiene protocols by providing a heroic, eugenic subject with whom the viewer can identify, such as *The End of the Road*'s Mary Lee and *Fit to Win*'s Billy Hale. In 1922, the *Science of Life* series, produced under the supervision of the Surgeon General of the United States, became the nation's last major federally-produced sex education film and thus serves as the terminal film in my archive. After the retirement of the *Science of Life*

series, the sex education films taught in public schools, like *Human Growth* (Wexler Films 1947), *As Boys Grow* (Medical Arts Productions 1957), *Am I Normal?* (Copperfield Films 1979), and *Where Did I Come From?* (Ventura Distribution 1999), have been produced by private film corporations, often in cooperation with medical school professors, and approved individually by district or state school boards.

The Progressives' program of "positive" eugenics has resurfaced in the twenty-first century, though it has been reworked through the neoliberal imperative of consumer choice. Both grounded in capitalist economic philosophy, the eugenics programs of the 1910s and 2010s each ascribe to the logic of utility, rationality, and productivity; all spare or constituent parts, including the raw material of human beings, must be recycled or redirected to serve a higher purpose. For the former, that higher purpose is the nation state; for the latter, it is the multi-national corporation. This shift is indicative of the economic transition that has taken place over the last several decades where even strong, capitalist federal governments are taking a back seat to free-flowing global capital and stock market indexes grounded in future speculation. Introducing ASHA's mission in the debut issue of the *Journal of Social Hygiene*, Winfield Scott Hall outlines a eugenic vision firmly anchored in positive eugenic practices since, he argues, it is positive eugenics that can engender human progress while negative eugenics only has value in arresting racial decline. Defining each, he writes that negative eugenics "seeks to avoid the propagation of the unfit" through restrictive practices like marriage regulations, sterilization, and even euthanasia. Positive eugenics, on the other hand, "seeks not only to promote the propagation of the fit, but furthermore to advance the efficiency of the fit" through educational and incentivizing programs like federally sponsored sex education

programs, tax inducements for married couples, and public enrichment classes designed to maximize one's hereditary potential through mental and physical exercise (68). Taking Hall's assertions one step further, Edith Ellis writes that "to obtain the very best results according to the hope of Eugenics, is surely to use, and not to abuse, or debase, or hurt, or discourage, any impulse or power in a human being which can be made into use or serve the whole community" (44). In other words, with proper cultivation, "any impulse or power in a human being" can be made to serve "the whole community." During World War I, when resources—including labor power—were particularly scarce, the eugenicists' investment in social utility prompted them to see the educated woman and the culturally productive "sexual invert" as model minorities to select *for* rather than social aberrations to select *against*. It is in this way that the capitalist logic of utility briefly coincided with the aims of the welfare state, feminism, and liberal sexual politics.

Following a more than fifty-year decline precipitated by a sobering, worldwide reflection on the atrocities that took place during World War II,[7] eugenic ideology has reemerged in the twenty-first century. In order to understand why, I want to briefly explore the eugenic-themed films and television shows produced in the interim. Not only do these mid-century works, like *Star Trek*, depart from their earlier and later counterparts, but they also predict the widespread resurgence of eugenics, accurately locating it in the 1990s.

[7] For an explanation of the decline of the eugenics movement both in the United States and abroad, as well as reflections on eugenics in the first decades following World War II, see: Richard Lynn, "The Decline of Eugenics" in *Eugenics: A Reassessment*. Westport: Praeger Publishers, 2001; Jerry Bergman, "A Brief History of the Eugenics Movement," *Investigator* 27 (May 2000).

Even though eugenic cinema began to wane in the 1920s with the dismantling of the U.S. Department of War's Social Hygiene Division and the implementation of strict censorship protocols on sexual themes in cinema,[8] eugenics has never been entirely off-screen. Rather, it has been relegated largely to the genre of science fiction. As David A. Kirby argues in "The Devil in Our DNA: A Brief History of Eugenics in Science Fiction Films":

> eugenic themes have been a constant presence in fictional cinema throughout the roughly hundred year history shared by both eugenics and the cinema. In general, science fiction films provide scholars a gauge of social concerns, social attitudes, and social change regarding science and technology. The cornerstone of negative eugenics, that human beings retain animalistic behaviors from their evolutionary past, has been a prominent theme and visual motif in science fiction cinema. The key principle of positive eugenics, a belief that human beings have untapped evolutionary potential, has also been a staple element in numerous science fiction films. (84)

In this passage, Kirby accurately observes that, over the last century, the concerns of eugenic cinema have oscillated with and through our changing social concerns, attitudes, and approaches to scientific advancements in human genetics. Where Kirby falters is in his misuse of the terms "positive eugenics" and "negative eugenics." Instead of

[8] For a history of the U.S. Department of War's Social Hygiene Division as well as the U.S. government's subsequent censorship of the hygiene films, see: Colwell, Stacie A. "The End of the Road: Gender, the Dissemination of Knowledge, and the American Campaign Against Venereal Disease during World War 1." *The Visible Woman: Imaging Technologies, Gender, and Science*. Ed. Paula Treichler, Lisa Cartwright, and Constance Penly. New York: New York University Press, 1998.

understanding them as specific modes of eugenic *practice* that either facilitate or inhibit reproduction (as Hall does), Kirby uses the terms colloquially to characterize eugenics *itself* as either positive or negative, according to the filmic depiction of eugenic protocols as unleashing our inner animality or enabling the attainment of human perfection. This fundamental misunderstanding of eugenic ideology, as it emerged in the Progressive Era, further leads Kirby to conclude that the

> persistence of these [two] themes over the last hundred years provides evidence that our beliefs and concerns about eugenic thinking, as represented in film, remain the same in the post-Human Genome Project age as they were in Galton's time. The only factors that have changed . . . are an increase in our knowledge of human heredity and our technological capacity both biologically and cinematically. We retain the same conviction that our fate is in our genome and the same hesitation about changing this sacred entity. With each new scientific discovery about the nature of human heredity, filmmakers have dusted off these themes and dressed them up with new graphical technologies. (85)

Kirby's assertion that cinema's deployment of eugenic ideology has remained fundamentally unchanged over the last century—that it has merely used new technological advances to "dress up" these two universal themes to reflect the primary social concerns of the moment—is not just overly simplistic, but actually undermined by the very evidence he presents in the body of his essay. In fact, eugenic ideology has undergone significant reconstruction. What I believe Kirby is picking up on in the above passage is not a hundred-year period of constancy but, rather, a burgeoning revival of

Progressive Era eugenic ideology in the present. Whereas mid-century eugenic-themed cinema used Nazian allegories to represent genetic intervention as monstrous and morally bankrupt, often locating it in a future that has forgotten the horrors of Auschwitz, contemporary filmmakers and television producers are increasingly moving "eugenics as a desirable scientific and social goal from the edges back into the mainstream" (84). It is this recent move I wish to contrast with the interim periods.

Dividing the past hundred years into five distinct time periods, Kirby thematically characterizes the history of eugenic sci-fi cinema into the following categories: Human Apes and Soulless Monsters (1900-1929); The Mark of the Beast and Nazi Supermen (1930–1949); Radiation, Our Genetic Future, and the Dawn of the Double Helix (1950–1969); The Reality of a Genetically Engineered World (1970–1989); and Liberal Eugenics, Genomic Enhancement, and the Mark of the Devil (1990–2004). While Kirby cites films like *Frankenstein* (1910) and *The Duality of Man* (1910) to justify his classification of the early period as "Human Apes and Soulless Monsters," he entirely overlooks the many pro-eugenics films which include science fiction elements like *The Spreading Evil* (1918) or fantasy interludes like *Where Are My Children?* (1916). Since the cinema genre was still very much in development during the Progressive Era, most films—including those with eugenic themes—incorporated aspects from several different genres (melodrama, comedy, morality tales, sci-fi, fantasy, education) and cannot be neatly categorized. Nonetheless, Kirby's thematic analysis of the other periods is largely useful, and it is these three interim periods I wish to gloss. By the outbreak of World War II, Kirby argues that eugenic-themed films are populated by Nazi-like mad scientists intent on creating monstrous super soldiers, parodying the Third Reich's plans for a

master race in films such as *The Mad Monster* (1942), *The Boogie Man Will Get You* (1942), and *Revenge of the Zombies* (1943). Even more explicit are the films (and novels) set in dystopian, alternate realities where the Nazis won World War II and have continued their eugenic experiments. A discernable shift occurs during the early 1950s with the outbreak of the Cold War and Watson and Crick's discovery of the double-helix. The methodological focus of using eugenic means to improve social conditions shifts from selective breeding to genetic intervention, which is then interwoven with the most salient perceived threats of the day: communism, nuclear catastrophe, and social conformity. For instance, in films like *Captive Women* (1952), *Terror from the Year 5,000* (1958), and *The Time Travelers* (1964), humanity's very survival depends on the ability to manipulate human heredity to counter the increasing degradation of the human gene pool caused by atomic testing. Throughout the 1960s, Kirby argues that

> the primacy of nature over nurture was reversed, and by the end of the decade, the belief that social environment was the larger contributor to societal problems like crime and poverty became entrenched doctrine. The social climate in the 1960s was not conducive to eugenic thinking, and science fiction films reflected this sociopolitical atmosphere. (93)

In the 1970s and 1980s, the threat of radiation is replaced by the threat of environmental destruction, while the advent of computers offers the possibility of augmenting the human by combining mechanic enhancements with genetic ones. Scientists are thus tasked with evolving the species to survive environmental catastrophe in films like *SSSSSSS* (1973), *The Mutations* (1972) and *Screamers* (1979), or altering the human

through cybernetic enhancement in *Blade Runner* (1982), *The Stepford Wives* (1975), and *Cherry 2000* (1988)—all with horrifying, apocalyptic consequences.

While I agree with Kirby's thematic assessment of each of these three periods, I argue his very claim that mid-century science fiction reverses the primacy of "nature over nurture" actually sets it apart from its pre-World War II predecessors as well as its successors beginning in the 1990s. Another stark contrast is that the mid-century texts center on the implementation of negative eugenic practices: they strive to restrict the reproduction of the "unfit" (non-engineered humans) through murder, sterilization, or confinement. The narratives thus unfold as a conflict between artificially enhanced humans and "us": their mortal combatants. This match-up between good and evil marks the mid-century's final departure from the other texts. During the Progressive Era, the eugenic scientist is the hero, but with the rise of Nazaism in the 1930s, he becomes the villain and remains so until the turn of the twenty-first century, when the scientist again becomes the protagonist in films like *Teknolust* (2004) and television series including *ReGenesis* (2004-2008), *Orphan Black* (2013-), and *Pure Genius* (2016-). There is however a divergence from the Progressive Era in that the heroes and villains in recent media texts are often *both* eugenicists and the lines between good and evil are deliberately blurred. What Kirby fails to see is the emerging effort to reclaim eugenics (now rebranded as genetic engineering)—not always through a benevolent scientific creator but, more often, through the indelible humanity of his or her product. The engineered human, who is often a scientific product turned scientist, emerges as the primary protagonist. In other words, these media texts are not necessarily trying to reclaim Frankenstein but, rather, his monster. For instance, *Orphan Black*'s development

of its Leda clones as fully fleshed-out, feminist characters is a dramatic departure from the ways in which genetically-engineered subjects have historically been portrayed in film and television. They are nothing like the mindless, marching, identical soldiers in *Star Wars* (1977), the ghoulish products of a mad scientist's medical experiments in *The Clone Master* (1978), or the human husks engineered to provide "spare parts" for their originals in *Parts: The Clonus Horror* (1979). Intrinsically beautiful, effortlessly likeable, and vastly different from one another, *Orphan Black'*s Leda clones are the series' chief protagonists, providing the identical eyes through which we interpret their genetically-enhanced world—a world not so far removed from our own. Unlike the more straight-forward films and TV shows of the past, *Orphan Black* bears out the true complexity of the twenty-first-century eugenic movement and reveals the ways in which "new eugenics" is both new *and* old.

Another point of contention I have with Kirby is his assertion that the 1960s' focus on the sociopolitical climate as the source of the nation's problems means that it was "not [an era] conducive to eugenic thinking." Rather, I argue that eugenic film and television produced in the 1960s was acutely aware that eugenics was in a period of latency and feared it would return in the future, once the immediate memory of World War II had faded from public consciousness. Moreover, the period's emphasis on cultural criticism enabled them to imagine genetic engineering not as a misguided attempt to uplift humanity but, rather, as the inevitable result of continued, cultural barbarism. The genetically engineered characters Khan in *Star Trek*, Henderson James in *The Outer Limits* (1963), the Daleks in *Dr. Who* (1963), and the mutant humans in *The Time Travelers* (1964) all suggest that mid-century science fiction was actively anticipating—

and attempting to fight against—the impending resurgence of eugenic ideology. The writers, including *Star Trek*'s Carey Wilber, had lived through the 1930s and 1940s and projected that eugenics would return because the cultural conditions that had enabled its rise had not been rooted out. These series even located eugenics' return in the correct historical period: in the 1990s or in the twenty-first century. They were able to see a future eugenic metamorphosis, rooted in their historical past, by envisioning the logical development of the nation's existing economic, political, and social policies.

Still, these eugenic themed science fiction films' and television shows' attempts at cultural criticism face precisely the same challenges as the poetry, art, and philosophy Adorno discusses in his 1951 essay "Cultural Criticism and Society." He writes that:

> Cultural criticism finds itself faced with the final stage of the dialectic of culture and barbarism. To write poetry after Auschwitz is barbaric. And this corrodes even the knowledge of why it has become impossible to write poetry today. Absolute reification, which presupposed intellectual progress as one of its elements, is now preparing to absorb the mind entirely. Critical intelligence cannot be equal to this challenge as long as it confines itself to self-satisfied contemplation. (34)

What Adorno is drawing our attention to is not, first and foremost, the barbarism of poetry (or cultural art forms more broadly) but, rather, the barbarism of our culture which "corrodes our knowledge of *why*" poetry after Auschwitz is barbaric (emphasis mine). The answer lies in how our "corrosion of knowledge" has allowed us to forget that the barbarism that produced Auschwitz is still very much a part of our culture today, even though the death camps have long been demolished. In other words, to persist in writing

poetry after Auschwitz is to produce a poetic monument of the very culture which produced Auschwitz and to participate, by denial, in the "corrosion of knowledge" and memory as well as the "reification" of that barbaric culture which makes cultural criticism inconceivable. What makes the legacy of Auschwitz unwritable, unrepresentable, and unspeakable is therefore not simply the enormity of capturing its horror and suffering but, rather, contemporary culture's complicity with Auschwitz. Since art is made from our culture—a culture which produced Auschwitz— its production risks reifying and perpetuating that very culture. Through the production of "amnesiac" art (art which fails to recognize the barbarism of the culture that is producing it), we "confine" ourselves to what Adorno calls "self-satisfied contemplation" and, in so doing, reproduce the conditions that enabled the first Auschwitz and could, potentially, enable a second one. This is precisely the kind of second Auschwitz *Star Trek* predicts in the Eugenic Wars of the 1990s.

Given this reality, where does Adorno suggest we go from here? After humanity has been negated, how can we produce art, including film and television? It is not until his 1964 essay "Commitment" that Adorno provides us with an answer through the distinction he draws between "committed art" and "autonomous art." Committed works of art, or artistic representations of atrocities like Auschwitz which strive to elevate humanity, are consumable and, therefore, capable of eliciting enjoyment. Through this process of commodification, something of the horror is removed and it becomes easier to go along with the culture that created both these artworks and the conditions which allowed the atrocities they depict to take place. Like the poetry Adorno cites, the Nazi-inspired eugenic films and television shows like *The Revenge of the Zombies* (1943), *The*

Werewolf (1956), *The Time Travelers* (1964), and *Dr. Who* (1963-1989) are committed works of art specifically designed to champion their own ethics but, by carrying this kind of moral "commitment," they denigrate into ideology. Counterintuitively, these films have in fact helped anesthetize us to the very atrocities they warn against. In contrast, Adorno calls for autonomous works of art which avoid popularization and commodification and, in so doing, become attacks on the market itself—attacks on the barbaric culture which produced Auschwitz. As Adorno argues, autonomous works of art participate in "anamensia" or unforgetting and are governed by their own inherent structure, "resisting by [their] form alone the course of the world" or the cultural status quo (180). While these works of art are necessarily created in reality, they have the power to regroup reality's laws and structures because, instead of trying to elevate humanity, they are ends in themselves. It is by creating these autonomous works of art, Adorno argues, that we can produce art and refrain from giving in to cynicism.

In light of Adorno's criticisms of committed art, the *Star Trek* example with which I began takes on alternative meaning. It is not, as Kirby suggests, that mid-century art "was not conducive to eugenic thinking," nor that *Star Trek* and its interlocutors miraculously predicted the return of eugenics beginning in the 1990s. Instead, I argue that *Star Trek*, in conjunction with the dense archive of films and television series cited above, actually facilitated the contemporary return of eugenics.

Contemporaneous with Adorno's writing, *Star Trek* adopts his fear that we will forget the atrocities of Auschwitz by dismissing them as something that only exist in our past and proactively locates them in our future as a warning. Yet, *Star Trek*, like the other eugenic-themed television series and films of the twentieth century, denigrates into

precisely what Adorno warns: it becomes consumable and thus elicits enjoyment in the viewer who fails to take its warning seriously. The horror that Khan represents is removed precisely as he becomes *Star Trek*'s most beloved villain and goes on to star in his own franchise film, *Star Trek II: The Wrath of Khan* (1982). Deconstructing Khan's enormous popularity in *The New Yorker*, Ian Crouch asserts that he is the "perfect foil—super-smart, super-strong, super-bad." His "badness" is eminently commodifiable and has spawned several children's action figures, Halloween costumes, video games, and other memorabilia. Like *Dr. Who*'s adorable Daleks, *The Outer Limits'* handsome Henderson James, and baby Caesar in *Escape from Planet of the Apes*, Khan is merely one in a long line of Nazi embodiments who have grown to become cherished cultural icons, making it easier for us to go along with a culture that has created both these entertaining media products and the very real atrocities they allegorize. In fact, in the final scene of "Space Seed," Captain Kirk commits a crucial error which *Star Trek* touts as a commendable act of forgiveness, thus advocating an ethics of absolution over an ethics of responsibility. Captain Kirk pardons Khan. Not only does he release him, but he actively installs Khan as the supreme ruler of Ceti Alpha V: a new civilization in which the inhabitants will all be the engineered product of "controlled genetics." Through Kirk's ethical lesson to his crew and, by extension, *Star Trek*'s viewership, the Nazian villain is humanized and his actions minimized. The series' moral commitment instructs us to follow Kirk, resolve that Khan's actions were not really so bad, and leave the culture that created Khan unchallenged. The result is that even as *Star Trek* sees itself as engaged in a struggle of resistance to hegemonic ideology, it is problematically embedded in that selfsame ideology. *Star Trek* may resist several surface manifestations

of prevailing social ideology, but it fails to recognize its collusion with the more insidious cultural ideology at work behind the scenes. It is in this way, Adorno argues, that cultural criticism "remains imprisoned within the orbit of that against which it struggles" (20). It launches its attack at the level of the exterior—at the superstructure—while failing to recognize its complicity in the reproduction of the base. It is in this way that *Star Trek,* like the other eugenic-themed science fiction programs of the latter half of the twentieth century, are unwittingly complicit in not only reifying the conditions which once led to Auschwitz, but also enabling a new eugenic renaissance. It is this eugenic renaissance, re-branded as eugenic engineering, that comprises my latter archive.

The eugenic renaissance of the twenty-first century has been enabled not only by the gradual, anesthetizing effect of committed eugenic media but also by a return to what Hall terms "positive" eugenic practices, which have been reframed and put in the service of different forces. Whereas eugenic science was once articulated by the state and enacted through public policy reforms, it is now administered by the corporation and subject to the individual profit motive. No longer openly advocated by the government and disseminated via a top-down model, eugenic consciousness in the twenty-first century has developed gradually and tacitly under the guise of parental free choice: embryo selection, genius sperm banks, genetic enhancements, and gene therapy. Even the word eugenics itself has been replaced with the more innocuous "genetic engineering" and "consumer choice." The public is now coming to eugenics rather than vice-versa. As Frederick Osborn predicted as early as the 1930s,[9] the long-term success of eugenics would depend

[9] For a full account of Osborn's predictions, see: "Frederick Henry Osborn Papers," American Philosophical Society (APS), 1983, published online.

on the expansion of the consumer economy and the emergence of the nuclear family unit as the primary purchasing unit. Once eugenic, medical intervention is reframed as a tool to empower the parent and child, it loses its "monstrous overtones" and becomes just another part of everyday medical procedure under "the legitimized authority of medical institutions" (Critical Art Ensemble 122). Under neoliberalism, the value of the productive child is simply understood as personal (an extension of the parents) as opposed to social (a contribution parents make on behalf of the nation). The next eugenic wave has "masked itself in the utopian surface of free choice and progress. In this sense," the Critical Art Ensemble argues, "power vectors have stolen and are cautiously using the strategy of subversion in everyday life to create *a silent flesh revolution*" (137; emphasis mine). It is precisely this strategy of "silence"—this strategy of invisibility in plain sight—that has allowed eugenic consciousness to take hold. Following the advent of the Human Genome Project in the 1990s, genetics has become a new buzzword, a metaphor for innovation, excitement, and the promise of human self-mastery, all the while eugenics is rhetorically relegated to a defunct relic of the past. Yet, in the margins of both science and media, eugenics is being helically woven into both its ideological and technological functioning. Beginning with the Academy Award nominated *Gattaca* (1997), this cultural fascination with human genetic engineering has spawned a plethora of science fiction films, television shows, and video games. Writing about *Teknolust* (2004) and *Genetic Admiration* (2005) through the lens of the "genetic imaginary" in *The Cinematic Life of the Gene,* Jackie Stacey argues that queer science fiction has the ability to disrupt the association between visuality and truth by revealing the complexities at work behind scientific and cinematic artifice. What is left out of Stacey's book, however, is a

consideration of the extent to which both scientific and cinematic artifice are driven by the logic of neoliberal capitalism. Their cinematic artifice (their queer "genetic imaginary") is constrained by their material conditions of production while their scientific artifice is constrained by the search for a specific purpose (biologically based human progress) and an essentialist appeal to science to justify queer existence. Looking specifically at the genetic sci-fi television shows (and, to a lesser extent, films) produced between 2000 and 2015, I explore their reformulation of eugenic ideology by investigating how their underlying, economic motivations superficially enable but ultimately disrupt their queer televisual (or cinematic) and scientific technologies of kinship.

It is in this way that the new eugenic media of the twenty-first century fails to live up to the vision of autonomous art Adorno outlines. Despite their purported objective to attack the barbaric culture that is stockpiling eugenic weapons in the form of synthetic human enhancements, these films and television series have become popularized media products "imprisoned within the orbit of that against which [they] struggle." Their attempts to elevate humanity have, instead, spawned T-shirt slogans, facebook memes, and laptop skin covered in double-helixes. This denigration into ideology is not, however, inevitable. In the final chapter of this project, I offer a vision for how we may produce new eugenic media texts that are ends in themselves, just as I suggest scientific discovery be returned to an end in itself rather than a journey towards intellectual property patents and pharmaceuticals. Once both science and media are free to adhere to their own inherent structure, they can resist commodification, intervene in the reification of cultural

barbarism (including heteronormativity), and regroup reality's laws and structures. It is in this way that new, radical queer forms of kinship can emerge both onscreen and off.

Old Eugenic Cinema and New Eugenic Media

Engineering Kinship is grounded in the assertion that we can understand social politics, including discourses of eugenics, through aesthetic form. In the chapters that follow, I will offer a historical and ideological examination of eugenic media—a *media genetics*—by investigating its evolving conditions of production, its content, and its form. Since it is, first and foremost, a change in economic infrastructure that has enabled the reformulation of eugenic ideology in the twenty-first century, it is crucial to the distinction I draw between old eugenic cinema and new eugenic media. Combining media archeology with humanistic close-reading and critical theory, I will reveal how these two media collections have both facilitated and preserved their respective eugenic discourses.

At the turn of the twentieth century, cinema's co-emergence with modern scientific technologies and the economic policies of the welfare state created the conditions of possibility for a government-sponsored eugenic cinema. In its early years, cinema was widely understood as a technology that had the ability to capture "the real" and to disseminate what many believed was the objective truth of modern science. Film quickly became an ideal form of propaganda for engendering popular compliance with medical advice. As medical historical Martin Pernick writes in *The Black Stork*, "the power of film" in the Progressive Era was "stronger than, and necessary for, the power of medicine. The repeated failure of the doctor's lectures provides justification for the film itself" (26). To editorialize on pressing national concerns like venereal disease while

encouraging citizens to remain fit for duty during World War I, the United States Department of War created a Section on Motion Pictures. Under the direction of Lieutenant Edward H. Griffith, the Department produced three full-length feature films: *Fit to Fight* (1918) for military men, *Fit to Win* (1919) for civilian men, and *The End of the Road* (1918) for women. Scientific imaging and research were worked into the films' dramatic plots by screenwriters who further inflected them with cultural dogma, eugenic ideology, and a tendency towards shock value, causing the scientific, the eugenic, and the sensational to become largely indistinguishable. This high level of entertainment attracted a captive audience and, according to the leading psychologists of the day, often persuaded viewers to take action through their "emotional stimulus." As Harry Wembridge contends in the debut issue of *The Journal of Social Hygiene*, sex education information is "insufficient in itself to accomplish the desired results, unless accompanied by an emotional stimulus which will evoke in the hearers the wish to make use of the information they have obtained. Therefore, in any plan for sex education, more care should be given to the rousing of suitable emotions and the training of the will" (159). It is the early film's deployment of a melodramatic narrative that provides the emotional appeal Wembridge describes. His findings are reinforced by the conclusions of Johns Hopkins researchers Karl Lashly and John Watson, who received a grant from the United States Interdepartmental Social Hygiene Board to investigate the effect of hygiene films in combatting venereal disease (Lashley and Watson 181).[10]

[10] Lashley and Watson's study found that 70% of viewers acquired and retained the sex education information included in the films, which is higher than earlier studies based on printed materials. However, their study is insufficient to prove their own conclusion that viewers actually *implemented* these protocols in their personal lives after viewing the films. For further reading, see: Lashley, Karl S., and John B.

In addition to these melodramas, other governmental departments produced expository short films on particular hygienic subjects, such as sex education and proper self-care. For instance, recognizing the overlap between social hygiene and the fitness of the nation's workforce, the U.S. Bureau of Labor produced films like *Our Children*, which sought to convince parents to take their children for regular doctor's visits while teaching home health-care practices like tooth brushing and face washing. Onscreen, these films combine filmed footage with hand-drawn, scientific models meant to faithfully represent the human body and its processes. Grounded in Enlightenment rationality, their vision of eugenics lay in the purity of the human genome: in a human gene pool free from "heredity taints" and other "pollutants" (Blank and Bonnicksen 213). These "hereditary taints" were not limited to what we now understand as monogenetic diseases such as Tay-Sachs or sickle-cell anemia, but extended to physical disabilities like locomotor ataxia (not being able to walk), mental illnesses like dementia praecox (schizophrenia), and even perceived "familial propensities" towards criminality, poverty, alcoholism, and prostitution (Lombroso 140). Under the Lamarckian view of genetic inheritance which dominated during the Progressive Era, the physical, mental, and moral qualities one acquires during one's lifetime (disability, education, wealth, virtue, etc.) were thought to be passed on biologically to one's offspring. This led the early eugenicists to conclude that through scientific means and social protocols like selective breeding, these hereditary taints could be weeded out, leaving them with a "purified" gene pool. In other words, just as they believed cinema could record "the natural," so

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Watson. "A Psychological Study of Motion Pictures in Relation to Venereal Disease campaigns." *The Journal of Social Hygiene*. 7(2): 180-219. 1921.

they believed scientific technology could be used to isolate and harness it. Intent on spreading their message to as many viewers as possible, the members of the Social Hygiene Division ensured that their films were both public and free, shown in work houses, schools, military training camps, and cinemas. Through the overwhelming popularity of these features as well as eugenic commercial films like Lois Weber's *Where Are My Children* (1916) and Harry J. Haiselden's *The Black Stork* (1917), film became the primary medium through which audiences encountered the speculative question of how to engineer human perfection. They played night after night to sold out movie houses, received front-page coverage in *The New York Times,* and garnered rave reviews in *Variety* and *Moving Picture World.*[11]

In the twenty-first century, this conversation has migrated to both the domestic sphere and to other media. Instead of having a public social experience in the theatre, we are now engaging with new eugenic media at home, where this discourse is dispersed among film, television, video games, and online virtual worlds. New eugenic media is defined by its conditions of production, its content, and its form. It has co-evolved with genetic engineering technology, coming of age in the post-Human Genome Project Era. Co-extensive with neoliberalism and late capitalism, it is produced by private, multi-national corporations and its purpose is not to educate but to make a profit by entertaining the consumer who pays for the content—be it a cable television show like *Orphan Black*, a video game like *Bioshock*, or a virtual reality platform like Second Life. New eugenic media's content is characterized by its focus on the speculative question of human

[11] For more information, see: Mulligan, William Edward. "Thousands Flock to See Hygiene Film." *Moving Picture World* 39(1): 100. 4 Jan. 1919; "Shows in Philly." 55(6): 34. *Variety*. 4 July 1919; "The End of the Road." *Exhibitors Herald and Motography* 8(25): 14. 14 June 1919.

perfection, which plays out in alternative, sci-fi worlds centered on experiments in human genetics. Whereas old eugenic cinema was interested in the taxonomy and classification of persons according the perceived quality of their genetic substance (i.e., the type and number of "hereditary taints"),[12] new eugenic media is motivated by creating something new. We are no longer interested in purifying the human genome, but in re-engineering the human, creating a cyborgian vision of human perfection realized through computer-generated special effects. Through its form, new eugenic media links the limitless potential of body manipulation with the endless manipulability of the media image. In fact, it is media form that makes these new genetic discourses possible. The only way we can visualize DNA or perform artificial gene synthesis is by using visual media technologies to enhance, magnify, and distort what cannot be seen with the naked eye. Even techniques originated in cinema, like cutting and re-arranging strips of celluloid, are now being employed in gene editing through the use of CRISPR technology. Developed at UC Berkeley in 2012, CRISPR can snip out a segment of any organism's DNA, enabling us to cut and edit the code of life. Unlike traditional forms of gene therapy which are limited to the stem cell line, CRISPR can edit genes on the human germ cell line which allows these changes to be inherited by the next generation, permanently modifying the human gene pool.[13] Several recent genetic sci-fi films, most notably the aptly titled *Splice* (2012), use quick, dramatic cuts in conjunction with spatial and temporal rearrangement to highlight the technological similarity been film cutting and

[12] For futher elaboration on hereditary taints, see: Hall, Winfield Scott. "The Relation of Education to Sex Betterment." *The Journal of Social Hygiene* 1.1 (1914): 67-80.

[13] For an explanation of CRISPR technology, see: Ledford H (June 2015). "CRISPR, the disruptor." *Nature*. Volume 522 (7554): 20–24.

gene splicing. Not only have visual media enabled the development of genetic engineering technologies, but eugenic ideologies have also become incorporated into the production of visual media. There is a eugenic logic to how media works; like genetic material, media is continually being repurposed. Practitioners treat the past not as a fixed set but as a collection of possibilities which can be taken back into the present and reconstituted. We are continually mining data in order to recycle form and content (cinematographic techniques, plot devices, character types, etc.) and then splicing them together to create new combinations. Other key characteristics of new eugenic media are the blurring of fiction and reality—such as scientific techniques, medical imaging, and historical events—achieved through the incorporation of several media forms into one. For instance, even a television series like *Orphan Black* assimilates other media forms including animations, MRI and ultrasound imaging, computerized graphics, and YouTube clips. Often, these other media are used to achieve the visual manifestation of bioinformatics: the joining of information with biology, such as computer imaging to represent DNA as visual information.

Orphan Black and *ReGenesis*, the two primary television shows I will discuss in chapters three and four, are part of a large corpus of internationally produced sci-fi TV series which use their aesthetic properties to stage the speculative quest for human perfection in a fictional world that recalls our neoliberal present. While television is not the only form of new eugenic media, it has perhaps the broadest reach and, because of its seriality, offers the potential for prolonged world building, playing out the eugenic project over several seasons. In addition to studying each text as a television show, it is necessary to take a comparative approach and examine it in relation to other eugenic

media, including film and the internet, because they are drawing from one another's history as well as cross-pollinating today. They are continuously in conversation with one another, as are their audiences. For instance, the fictional company Dyad in the *Orphan Black* universe has a website that exists on our internet, where it advertises its lectures and products, such as a book written by one of its characters, Dr. Leekie. If you follow the links from the website, you will find that the speech Dr. Leekie gives in the show is actually taken, almost verbatim, from a Ted Talk that went viral on YouTube by Dr. Harvey Fineberg, the real-world proponent of what he calls "Neo-Evolution." Because of the increasing overlap and interconnection among media, we cannot fully understand a given media text if we are not aware of the myriad ways in which it is using its televisual form and narrative content to respond to and incorporate aspects of other eugenic media, both past and present.

New Eugenic Media not only demonstrates for us the relations among media texts and media forms, but also among different branches of knowledge. For instance, new eugenic television shows—like *Orphan Black* and *ReGenesis*—use aspects of shot composition, cinematography, and sound to depict the continually evolving relationships among capitalism, science, law, and religion. This helps us see the structures in which we are living. For instance, if we want to understand the significance of gene patenting or science's dual-use dilemma, we cannot simply look to legal or scientific documents. These records alone do not show us how the different branches of knowledge are interconnected, and it is these interconnections we need to understand if we wish to intervene in and redirect the future, particularly if we have reservations about where the new genetics movement may be taking us. These are precisely the stakes of my project,

and why I will bring theorists who work on biopolitics, like Michel Foucault, Melinda Cooper, and Eugene Thacker, to bear on media texts. Over the last century, media and genetics have developed in tandem, reaching their present maturity through the enabling structural and ideological conditions of neoliberal capitalism. With the spheres of production (labor) and reproduction (life) increasingly blurred, the media image and the living gene have become largely inseparable. This shared conceptual foundation has also led to the kinds of technological borrowing described above. Media are the tools we are using to both aid genetic engineering practices and visualize the legal, economic, and social consequences of biopower, making it impossible to understand biopolitics without considering its mediation. By the same token, the biopolitical imperative of surveillance and the disciplining of the body politic have led to the development of specific media forms such as closed circuit television production, cinematographic techniques like tracking shots, and motifs including mirrors, cameras, and screens within a screen. This is why biopolitical television series which incorporate these elements—like *Orphan Black* and ReGenesis—are such generative texts. They stage eugenic politics by using their aesthetic form to image the entanglement among capitalism, science, law, biopower, and media. In fact, in *Orphan Black*, the clones themselves—who, through the magic of television, all appear onscreen together—visually represent how these different branches of knowledge are intertwined. They are, at once, the product of the limitless potential of body manipulation and the endless manipulability of the media image. Together, they make an aesthetic case for the value of comparative and interdisciplinary methodology in understanding the contemporary moment.

New eugenic media's manipulative desire stems from the way in which genetic substance and the media image are structured by the same logic: the logic of capital in an overdeveloped commodity economy. Discussing the media image as a commodity of illusion in *The Society of the Spectacle*, Guy Debord argues:

> It is the reality of this situation—the fact that . . . use value has no existence outside the illusory riches of augmented survival—that is the real basis for the general acceptance of illusion in the consumption of modern commodities. The real consumer thus becomes a consumer of illusion. The commodity is this illusion, which is in fact real, and the spectacle is its most general form. Use value was formerly implicit in exchange value. In terms of the spectacle's topsy-turvy logic, however, it has to be explicit or the very reason that its own effective existence has been eroded by the overdevelopment of the commodity economy, and that a counterfeit life calls for a pseudo-justification . . . the totality of use has already been bartered for the totality of abstract representation. The spectacle is not just the servant of pseudo-use, it is already, in itself, the pseudo-use of life [perpetuated by] the ceaseless manufacture of pseudo-needs. (14-15)

The eugenic objective of perfecting the human (both its image and its genome) is perhaps the pseudo-need *par excellence*. The eugenic consumer is, like the consumer of media images, a "consumer of illusion" driven by the "pseudo-justification" of eugenic improvement. The use-value of these perceived improvements, both in the early twentieth century and today, is most often negligible. To the extent that the living gene has become

a fetish object used to mythically represent a function it does not have (i.e., the "gay gene"), the gene brings new meaning to the expression "a pseudo-use of life." In cultural discourse, the gene has become an omnipotent figure, a small, living piece of matter thought to autonomously control human functioning. In reality, of course, the gene is not all-powerful. It is but one part of a complex, interconnected, living organism that is controlled by a combination of biological and genetic factors, the environment, the forces of epigenetic expression, and numerous other influences still unknown to us. The gene-as-fetish, like the media image, is in this way a commodity of illusion. This is not, however, to say that the gene is not real. Just like the sexed body Butler discusses in *Bodies That Matter* is subject to the social construction of sex, so I argue that the living gene is a function of social construction at the level of matter. In fact, social constructionism itself is a form of eugenics; like the categories of sex and gender could be made differently, so the myth of the gene could be reformulated to achieve alternative ends. Instead of reifying the gene as a normalizing tool for the elimination of "hereditary taints" and the infinite replication of humanity's "best" genes, the gene could be reworked as a radicalized instrument of variety, difference, and alterity. In order to do this, I argue we must rethink media and eugenics *together*. By exposing their shared "pseudo-use of life" and dissociating them from their capitalist imperative, we can reformulate eugenic ideology as a dissident and enabling queer discourse.

Faciliating Queer Difference: Genetic Technologies & The State

Against the anti-social turn in queer theory initiated by Leo Bersani and Lee Edelman, my project aims to recuperate the ethical practices of queer kinship—including radical formations of gender, sexuality, and social collectivity—that developed in eugenic

circles during the American Progressive Era so that we can assess their potential value today. *Engineering Kinship* approaches this task by intervening in the existing literature on eugenics to reveal its early ideological and practical intersection with progressive politics, welfare reform, and the women's movement. I will examine how eugenics' progressive and regressive elements initially co-existed together—and then how the latter overtook the former—in order to demonstrate how a similar ideological shift is taking place in genetic engineering discourse today. Since eugenic consciousness relies largely on its ability to spread tacitly under the auspices of consumer choice, revealing its economic and ideological architecture is the precondition for any possibility of undercutting its reification.

This investigation of early modes of queer kinship is particularly prescient today because, in the wake of the degeneration of the modern political organizations, the rights discourse of the twentieth century is increasingly being replaced by essentialist appeals to science. The quest for a scientific basis for gender and sexual orientation is particularly troubling because, as Eve Kosofsky Sedgwick first warned us in *The Epistemology of the Closet,* the search for queer origins is a suicidal impulse. It is inextricably bound with "the desire that gay [or queer] people not be" (43). Queer theory, as an academic discipline, developed against the backdrop of the AIDS crisis as a critical reaction against this mainstream desire for queer erasure. In fact, "increasingly it is the conjecture that a particular trait is genetically or biologically based, *not* that it is 'only cultural,' that seems to trigger an estrus of manipulative fantasy in the technological institutions of the culture" (43). In other words, the cultural fantasy of a "gay gene" will not ensure political rights but, on the contrary, promises to fulfill the "AIDS-fueled public dream" of

eradicating the gay population. But whereas the AIDS epidemic of the 1980s and 1990s resulted in a public spectacle of human suffering, disease-ridden bodies, and the death of nearly a half million people in the Unites States alone,[14] this new genetic approach promises to—under the guise of respectable science—neatly and painlessly target only the offending gene. It is this presumption that homosexuality can be eliminated by "correcting" a deleterious gene, without ending a single life, that makes it thinkable—and weaponizeable—in a way that AIDS was not. My work intervenes in the biologization of homosexuality by demonstrating the risks of essentialist appeals to science, which are increasingly becoming ingrained in our cultural and economic infrastructure. In addition to the myth of the "gay gene," I expose the more practical ways in which technological means and legal strategies are being used to compel domestic normativity while disproportionately targeting the queer community as a consumer base for genetic technologies. This mode of queer normalization—of modeling queer kinship structures after the heteronormative family—is yet another form of queer erasure.

Throughout *Engineering Kinship*, my biopolitical critique of eugenic practices is grounded strongly in both feminist and queer theory. Since the two are sometimes at odds with one another, particularly in instances where women's bodies are providing the genetic substance or the incubation for the creation of queer families, I urge us to keep personal and property rights in tension with one another. For instance, it would be remiss to consider the enabling effects of this genetic substance without considering the

[14] According to the United States' Center for Disease Control, 448,060 people died from AIDS in the United States between June 1981 (when the first case was reported) and December 31, 2000. For more, see: https://www.cdc.gov/mmwr/preview/mmwrhtml/mm5021a2.htm.

lingering effects of the removal process on the woman herself, particularly when the U.S. legal system is skewed toward private property rights (the rights of those who receive the genetic substance) over the personal rights of the woman who has donated it (informed consent, side effects, permanent biological damage). In each chapter, I therefore use the epistemic privilege provided by both feminist and queer theoretical frameworks to shed light on the flaws of the other. It is also in this way that I use a dialectical approach to think *with* eugenics *against* eugenics in order to reimagine queer kinship in light of new advances in genetic science and engineering technologies. As I argue, our very existence depends upon maintaining an understanding of queer embodiment that, like the Progressives' notion of sexual inversion, is a multi-faceted and indelible part of the whole person while linking the individual with others through the bonds of kinship. My project therefore resurrects frameworks from early, queer counter-culture in order to use them as a guide for developing strategies for how twenty-first-century technologies can work with, rather than against, queer difference.

This turn towards queer kinship is also grounded in the work of Judith Butler, as I rethink the nexus she asserts between the state and structures of kinship in both *Antigone's Claim* and *Undoing Gender*. For Butler, "the state becomes the means by which a fantasy [of kinship] becomes literalized: desire and sexuality are ratified, justified, known, publicly instated" (*Undoing Gender* 111). For those of us on the sexual margins to carve out "livable lives," she argues we must think of ways to "become possible" that do not depend on the state for legitimation. If we continue to appeal to the state for recognition, in the form of marriage or other entitlements, Butler contends that "the sexual field becomes reduced, in its very legibility" (106). For instance, if we leave

the structure of marriage intact and merely open it up to same-sex couples, we have done nothing but further normalize this one, recognizable form of kinship without challenging its underlying assumptions. While I agree with Butler's argument about the problems of extending heteronormative models and appealing to the contemporary state for legitimacy, I argue that, in the Progressive Era, the welfare state (almost unrecognizable when compared with the twenty-first century nation-state under neoliberal capital) played a vital role in creating the conditions of possibility for the emergence of queer forms of kinship that operated outside of the corpus of legal legitimacy. In fact, it was the welfare state's emphasis on social utility and the demand for fit bodies during World War I that led the early eugenicists to embrace the educated woman and the creative sexual invert. In other words, while the state itself did not offer legitimization to same-sex couples, polyamorous relationships, or single people, the ideological and practical formation of the eugenically-oriented welfare state nonetheless provided the enabling conditions for the formation of unofficial, queer forms of kinship during the 1910s and 1920s. With the subsequent decline of the state's welfare programs and its ethos of social collectivity, these early forms of queer kinship have become defunct—just like the model of the nation-state that existed during the Progressive Era.

In the twenty-first century, mainstream LGBT organizations, like the Human Rights Campaign and the National Center for Transgender Equality, have taken up precisely the approach Butler warns against: they have made appeals to the state to grant legitimacy to queer relationships through extending marriage and adoption rights. Simultaneously, the advancement of genetic technologies has enabled queer couples to create biological families that resemble heteronormative, nuclear family units while

simultaneously searching for a biological origin to explain LGBT identity. These two approaches—the quest for marriage equality and the search for the "gay gene" (and, even more recently, the "trans gene"), are driven by precisely the same kind of appeal for legitimation. The appeal to science to justify LGBT existence is inextricably tied with the appeal to the state for political rights. While one cannot deny the legal, economic, and affective benefits that come with having one's marriage or parental rights recognized by the state, they are, as Butler asserts, normalizing a very particular, heteronormative model of kinship without challenging its underlying assumptions. The result is that more radical forms of queer kinship are pushed further outside the circle of legitimacy. However, my examination of the way in which the Progressive Era welfare state enabled queer kinship formations—just as John D'Emilio asserts that capitalism enabled the formation of gay and lesbian identity—suggests that the state, even in its contemporary formation, does not have to be a de-radicalizing force. By recuperating some of the strategies for queer kinship formation developed during the Progressive Era, I argue that we may be able use the state and its resources to help facilitate queer kinship formations *without* turning to the state for formal legitimation.

In *Part One: From Eugenics to Genetics*, I examine two companion films, the women's feature *The End of the Road* (1918) and the men's feature *Fit to Win* (1919), both produced by the U.S. Department of War's Social Hygiene Division during World War I. Setting them alongside several short films, journal articles, and government documents, I argue that the American Progressive Era facilitated a eugenics program centered on the perfection of the human race through the cultivation of untapped potential in two unlikely sources: women (Chapter 1) and sexual inverts (Chapter 2). Drawing on

research conducted at the National Archives, Library of Congress, Michigan Historical Heath Film Collection, Wangensteen Health Sciences Library, and the private holdings of the John E. Allen estate, I construct the early eugenicists' conception of gender and sexuality as a theoretical discourse in its own right. Presented in this way, it illuminates a series of fissures in Freud's theory of psychosexual development and Foucault's theorization of sexuality. What the eugenicists offer is a strikingly different way of interpreting gender and sexual "abnormality"—not one which replaces the traditional narrative but, rather, serves as a companion to it: a window into a forgotten, queer counter-culture. Engaging substantially with Foucault in Chapter 1: "From Sentimentality to Science: Women, Social Utility and *The End of the Road*," I investigate how eugenic ideology relies upon a medicalized understanding of sexuality and an intensification of the body while, at the same time, the influence of American progressivism partially interrupts the deployment of sexuality. While many other popular films, novels, and magazines sought to keep women mired in virtuous domesticity, the governmental hygiene films recognized that the empowered woman possessed a particular brand of untapped social utility which, property harnessed, could facilitate cultural progress. By appealing to the values and aims of the early eugenicists' idea of an intelligentsia-led sociocracy, educated women became a model minority to be utilized in realizing their vision of human perfection, allowing the eugenics program to temporarily merge with the feminist platforms of female education, suffrage, and professionalization. Moreover, by appropriating several radical, collectivist, and feminist platforms of the progressive movement and putting them in the service of a capitalist economy, the eugenicists helped ideologically co-opt many liberals who might have otherwise sought socialist revolution.

While in Chapter 1 I demonstrate how the early hygiene films present a filmic embodiment of the eugenics movement's vision of female perfection, in Chapter 2: "Nervousness is the Service of the Intellect: Sexual Inversion, Aesthetics, and *Fit to Win*," I argue that it is the filmic *absence* of the sexual invert that is just as telling. Despite the archive's frequent admonitions against masturbation, prostitution, and infidelity, there is no mention of sexual inversion or homosexual behavior. In fact, contrary to what more contemporary viewers might expect, the early eugenicists did not select against homosexuality. The reason, I argue, lies in their theory of the hereditary sexual instinct. In their view, an abnormal sexual instinct stemmed from the inheritance of a "nervous" disposition which was positively correlated with high intelligence and creativity. So whereas Freud and Foucault take for granted that early mainstream psychiatry sought to reform or protect society from the threat of the sexual invert, the eugenicists recognized that the sexually abnormal person—*as abnormal*—possessed a particular brand of social utility which could enable cultural advancement. They therefore tapped into the intellectual and creative resources of their female and sexually "abnormal" citizens to move the nation forward culturally, economically, and genetically.

Part Two: Genetic Case Studies in Genetic Science Fiction traces the enduring legacy of eugenics, both onscreen and in the life sciences today. As I contend, these early modes of eugenic thought begin to reappear in the late twentieth century, though their concerns diverge from the Progressive Era's preoccupation with social betterment through the perfection of human life. By contrast, the new life sciences dovetail with the imperatives of neoliberal economics by blurring the boundaries between the spheres of production (labor) and reproduction (life). Enlightenment values are thus reworked to

support the neoliberal imperative: the First Amendment freedoms are extended to include free trade, the pursuit of happiness becomes the pursuit of profit, and individual liberties are rewritten as consumer choice, which now extends to genetics. There is a fantasy that you can re-make yourself by picking and choosing your own characteristics. The Progressives' celebration of human variation is rescinded and any deviation from the norm is re-written as an individual problem that requires an individual, genetic solution. In this section, my examination of this genetic fantasy—and the biological solutions it portends—are informed by my discussions with members of the scientific and patenting teams at Avalanche Biotechnologies in Silicon Valley, who helped teach me the technological processes of isolating and creating clone DNA as well as the ways in which they are often culturally misappropriated.

Connecting the real-life patenting of genes to the fictional patenting of the human genome in *Orphan Black* in Chapter 3: "Patenting the Human: *Orphan Black*, Synthetic DNA, and the Sterility Sequence," I argue that the neoliberal shift towards privatization reframes the question of private property. While the modern legal subject had ownership over its body, the meeting of eugenic science and intellectual property law demands the question: To whom do the body and its self-reproducing parts belong? In a departure from the distinction Melinda Cooper draws between the stem and germ cell line, I argue that the 2013 *Myriad* Supreme Court Case creates an ideological loophole towards the patenting of "life itself," and *Orphan Black* uses its aesthetic form to state a eugenic politics of gene patenting, thus providing an explanatory tool for how the modern legal system is structured by corporate pressures and a mode of legal interpretation that privileges private property rights. Through its televisual techniques, narrative strategies,

and incorporation of elements from other media, *Orphan Black* also manipulates history to create its own visual genealogy of eugenics: a genealogy rooted in the Progressive Era that still holds generative possibilities for us today. By linking genetic manipulation with the endless manipulability of the media image, I argue that *Orphan Black* gestures towards *a way out* of the very commodification of human genetic substance it stages.

In Chapter 4: "Back to the Future: *ReGenesis*, the Gay Gene, and Scientific Censorship," I explore our cultural (mis)interpretation of the determinative role individual genes play in human behavior as well as the return of science's dual-use dilemma in the wake of biological weapons development. Focusing my analysis on *ReGenesis*, I argue that the series' eugenic project centers on a series of genetic trials designed to test experimental cures for the conditions that afflict its principal characters—conditions which, I argue, mirror the disorders that the Progressive Era eugenicists associated with the "neurotic genius." Each character's high intelligence is paired with one of the less advantageous qualities in the neurotic cluster: anxiety, addiction, homosexuality, and Asperger's Syndrome. No longer linked ideologically, these four conditions are now connected economically through the corporation that offers these genetic cures for the "unruly" citizen. Yet, by focusing its narrative around the cures' efficacy, *ReGenesis* deflects attention away from its underlying premise: that erasing these human traits is marketable. Counterintuitively, the cure's success is not the main objective; the corporation makes a profit simply by selling it. And, as we learn in the series' exploration of addiction, capitalism actually depends on us *remaining* addicted. It needs us to purchase each successive quick fix in the form of yet another commodity.

Turning to the "gay gene" in the latter half of the chapter, the fact that homosexuality no longer needs to be justified through an association with high intelligence, creativity, or social utility indicates a degree of social progress since the early twentieth century. Yet, it is the very ideological separation of homosexuality from these other qualities that makes it vulnerable to eradication a century later. In this chapter, I argue that LeVay's and Hamer's purported discoveries of "gay brains" and "gay genes" have resurrected the foundational principle of Havelock Ellis's theory of sexual inversion by locating this inversion not in our gender presentation but, rather, hidden in our genes or anatomical structure: in the supposed sexual dimorphism of the human brain and on gene Xq28, inherited from the mother. This twenty-first-century re-writing of the mother's role in male homosexuality is replicated in *ReGenesis* as it classifies male homosexuality as a sex-linked trait, passed genetically from mother to son. Analyzing both Hamer's flawed study on Xq28 and its correlate in *ReGenesis*, I argue that the life of the mythical gay gene, which has become materialized not in the scientific laboratory but in our cultural imaginary, is the result of several forces which have coalesced under neoliberalism: a willful misunderstanding of the determinative role of genes in human behavior, the conflation of truth with profitability, corporate investment in speculative (genetic) futures, and consumer free choice. This is perhaps most notable in *ReGenesis*'s staging of the dual-use dilemma, not only in response to the cure for the gay gene, but all four conditions which once comprised the "neurotic cluster." As I argue, the dual-use dilemma, which asserts that the same scientific discovery which purports to better humanity could also be used to destroy it, is in fact a false dilemma. It occupies us with the question of scientific censorship in order to distract us from the structuring logics of

capitalism at work beneath the surface. Instead of asking ourselves whether we should censor discoveries that could harm humanity while trying to improve it, I urge us to ask: Why must humanity be on a path towards continual betterment and why must science be tasked with this purpose? In fact, *ReGenesis'*s solution to this dilemma—to use our evolutionary past to guide us forwards—is a carefully crafted, depoliticized strategy. The assertion that we need to start over with a historical *re*-genesis forecloses the possibility of going forwards *differently*. It forecloses the possibility of de-privatizing the medical and pharmaceutical industries, challenging structural inequalities, or redistributing wealth by instituting economic socialism.

It is precisely this ability to go forwards *differently* that I advocate for this project. I urge us to rigorously examine eugenic history and the radical modes of kinship that developed in early queer counter-culture so that we can use them as a guide for intervening in the reification of twenty-first-century eugenic consciousness. Rather than chasing political legitimacy or normalization through essentialist appeals to science or the state, I encourage us to manipulate our own emergent media and genetic technologies so that they can work with, rather than against, queer difference.

CHAPTER ONE:

FROM SENTIMENTALITY TO SCIENCE: WOMEN, SOCIAL UTILITY, AND *THE END OF THE ROAD*

The Most Talked About Picture in America
— *Exhibitors Herald*

The most daring picture of sex relations ever told!
— *Photoplay*

Thousands flock to see hygiene film. Police called when overflow crowds surged at doors of St. Paul Auditorium to see *The End of the Road*
— William Mulligan, *Moving Picture World*

These striking headlines titillated the nation as its major film journals and newspapers reported on the public excitement and controversy that courted *The End of the Road*, the U.S. Department of War's first and only women's melodrama. The chaos reached its zenith on December 13, 1918, when a crowd of over 4,000 descended upon the small, Midwestern theatre, undeterred by the winter cold. By 7:30pm, it was so overrun police had to escort thousands of people from the theater, only getting them to leave with the promise that two additional screenings would be scheduled the following day. But why were "1,000 persons jammed about the doors," so insistent on seeing *The End of the Road* that "police were called to quell the riot" (100)? Breaking the story, Mulligan reveals "someone picked the doors of the Saint Paul Auditorium between 6 and 6:30pm so that when officials of the show opened the house at 7pm they found 2,000 persons already inside," causing those who had been waiting in line to protest (100). The theater take-over in St. Paul was by no means an isolated incident. Similar crowds overran theaters in New York, Chicago, and Philadelphia as thousands of eager patrons

showed up to sold-out movie houses during the film's public release. Given the sensational appeal and mass popularity of *The End of the Road,* leading to its unofficial designation as "the most talked about Picture in America" in 1919, it is surprising the film has not received greater critical attention by film scholars.

While other hygiene melodramas such as Lois Weber's *Where are My Children?* (1916) and Harry J. Haiselden's *The Black Stork* (1917) have recently provoked sustained critical interest, most notably from Martin Pernick and Shelley Stamp, *The End of the Road* and the other films produced by the U.S. government have rarely received more than a passing mention. When these films do appear in the existing literature, they are cited primarily as evidence of the quick and dramatic shift in film censorship that began with the U.S. Supreme Court's decision that state censorship of motion pictures was constitutional in *Mutual Film Corporation v. Ohio Industrial Commission* (1915)[15] and then intensified after World War I when sex education was no longer vital to national defense. Unlike the commercial films in this archive, *The End of the Road* and its companion features[16] were censored by the very government that had produced them

[15] In 1913, the Ohio state government passed a statute creating a board of censors responsible for reviewing and approving all films to be shown in the state. It charged a fee for this service and held the right to arrest anyone showing unapproved films. The plaintiff in this case, the film distributor Mutual Film Corporation, argued that the censorship board violated its freedom of speech, interfered with interstate commerce, and was illegally taking over the government's legislative authority. The Supreme Court ruled, 9-0, that freedom of speech did not extend to motion pictures. In his majority opinion, Justice Joseph McKenna writes that motion pictures are "vivid, useful, and entertaining, no doubt, but, as we have said, capable of evil" and their censorship is therefore not "beyond the power of government." In 1952, the Supreme Court overturned its *Mutual* decision in *Joseph Burstyn, Inc v. Wilson*, which loosened The Production Code until it was abandoned in favor of the movie rating system in 1968. See*:* Jowett, Garth S. "'A capacity for evil': The 1915 supreme court Mutual Decision." *Historical Journal of Film, Radio and Television* 9 .1 (1989): 59–78.

[16] *The End of the Road* (1918), *Fit to Win* (1919), and *Fit to Fight* (1918) comprise the three films produced by the U.S. Department of War's Social Hygiene Division, Section on Motion Pictures. *Fit to Fight* and *Fit to Win* are largely the same film, but were tailored for their respective audiences: *Fit to Fight* for military men and *Fit to Win* for civilian men. All three films were produced to educate men and women about venereal disease, which was crippling the U.S. army. While *Fit to Fight* has been lost to history, a surviving

when Surgeon General Rupert Blue withdrew his endorsement only six months after their release. Certainly, censorship of the early hygiene films is a crucial subject for film history, which has been theorized extensively by Stamp, Eric Schaefer, and Stacie A. Colwell, each of whom offer compelling—sometimes complementary, sometimes contradictory—explanations.[17] Still, the fact that *The End of the Road* and the other government hygiene films have been *reduced to* their censorship battles indicates a glaring absence in the existing scholarship.

Like *Where Are My Children?* and *The Black Stork*, these government films are prime examples of what Stamp refers to as the "social problem films" of the 1910s. Cinema, Stamp argues, "was *the* medium of the Progressive Era, capable of editorializing on all of the principal concerns of the day," and, through filmmakers like Weber, "women could be the central visionaries of this period, both as filmmakers behind the scenes in Hollywood and as agents of change in the world at large" (140). While

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copy of *Fit to Win* was preserved by film collector John E. Allen. Incorporated as the John E. Allen Archives after his death, this collection holds original copies of thousands of early motion pictures, totaling 25 million feet of 16mm and 35mm footage. After traveling to the University of Michigan Historical Health Film Collection to view *Fit to Win* and *The Black Stork* with the collection's curator, historian Martin Pernick, I corresponded with John E. Allen's surviving daughter, Janice Allen, and purchased DVD copies of several films from their collection. Additionally, I traveled to the Library of Congress and the National Archives in Washington, D.C. to view several short, instructional films produced by the U.S. Public Health Service and the U.S. Department of Labor. Many of these films, including *Personal Hygiene for Young Men*, *Personal Hygiene for Young Women*, and *Female Reel: Naked Truth*, are part of the 1922 *Science for Life* series. These films, each designed to be shown to a single-sex audience, use much of the same footage, but tailor the information they present to reflect the perceived needs of their audience based primarily on age and gender.

[17] Colwell primarily takes at face value the censorship boards' reasoning for banning most of the social hygiene films: their depiction of venereal disease was unnecessary spectacle and their explanation of birth control, abortion, and prophylaxis was "confusing." Stamp and Schaefer acknowledge these explanations, but they also offer their own hypotheses. Both argue the decline of cinema as an educational and interventionist medium (in favor of cinema as pure entertainment) contributed to the films' relegation to the "exploitation" sphere. Additionally, Schaefer cites their depiction of venereal disease as cutting across class lines (rather than locating the lower classes as the source of disease), while Stamp implies that the involvement of women in their production and their underlying feminist sympathies may have contributed to their censorship.

stationed in New York instead of Hollywood, the U.S. Department of War's Social Hygiene Division[18] espoused similar principles. To "editorialize" on pressing national concerns—sex education, venereal disease, prophylaxis, sex relations, and selective breeding—it created a Section on Motion Pictures and installed several women in leadership positions, including Katherine Bement Davis who wrote the screenplay for *The End of the Road.* A subset of the social problem films, hygiene cinema, Pernick argues, "sought not just to illustrate, but also to shape history" (20) because "in their minds, what distinguished propaganda from information was not the content but the intent—the desire to control the audience's response. It was a means of balancing the power of medical expertise with the value of majority rule; a modern technical method to produce popular compliance with expert advice, without the need for coercion" (25). It is this belief in the power of the cinematic medium to shape public behavior that compelled not only professional filmmakers like Weber but also progressive reformers, intellectuals, and government officials to take up movie cameras. In fact, many members of the CTCA Section of Motion Pictures described themselves as all of the above. Yet, there are striking differences among the Progressive Era hygiene films. In this project, I look exclusively at the smaller archive of hygiene films produced by the U.S. Department of War, the U.S. Public Health Service, and the U.S. Department of Labor from 1915-1922 in order to uncover their unique social vision and, in so doing, reshape our current

[18] U.S. Secretary of War Newton Baker established the Social Hygiene Division of the Commission on Training Camp Activities (CTCA) in April 1917, following the publication of a report in which he identified venereal disease as the primary cause of military inefficiency and economic waste in the army. Secretary Baker divided the Social Hygiene Division into five sections: (1) Army Section (led by Captain Royce Long), (2) Navy Section (led by Assistant Surgeon H. E. Kleinschmidt), (3) Section on Men's Work (led by William Zinsser), (4) Section on Women's Work (led by Katherine Bement Davis) and (5) Section on Motion Pictures (led by Lt. Edward H. Griffith) (Davis 531).

understanding of early eugenic cinema. Crucial to this vision is the fact that the leadership of the Social Hygiene Division, including Davis, were also members of the American Social Hygiene Association (ASHA) and frequent contributors to its affiliated publication, the *Journal of Social Hygiene*. In fact, all three organizations shared a single Manhattan office. This overlap is indicative of the extent to which the U.S. government, ASHA, and the broader Progressive Era eugenics movement were intertwined and held a common ideological mission.

A primary reason why the government's hygiene films have not yet have been treated alongside those of Haiselden and Weber is that their model of eugenics diverges dramatically from that of the other films. While Pernick dedicates chapter seven of *The Black Stork* to examining the differences between what he calls "pro-eugenics" and "anti-eugenics" films, there is in fact another, more pertinent distinction. What separates the government films from the others is their reliance on positive rather than negative eugenics. Positive eugenics advocates the improvement of genetic traits by implementing educational and social programs that promote higher rates of reproduction for those with desired traits, while negative eugenics seeks to reduce the rate of reproduction for those with undesirable traits. Weber's and Haiselden's pictures are grounded in negative eugenic practices (abortion, sterilization, euthanasia) which offer an evocative pre-history of the atrocities that occurred in the 1930s and 1940s, not only in Nazi Germany but throughout the Western world. Their movie posters are emblazoned with salacious taglines like "Kill Defectives, Save the Nation, and See *Black Sto*rk" which support this conventional narrative. Films like *The End of the Road*, on the other hand, present a nearly forgotten counter-history of the birth of eugenics. Their vision of human

advancement centers on a governmentally sponsored program of positive eugenics (selective breeding, prophylaxis, maximizing hereditary potential through education, preventing birth defects via scientific advancement), which dovetails with the concerns of first wave feminism, progressive economics, and the emergence of the welfare state.[19] As these films attest, negative eugenics only has value in arresting racial decline; it is positive eugenics that can engender human progress.

Looking back on the eugenics movement a century later, with the memories of forced sterilization, racism, classism, and the atrocities of Nazi Germany still etched in our collective consciousness, it is clear that the term eugenics has become so pejorative that it sometimes causes us to dismiss a critical examination of the past and to caution against twenty-first-century incarnations of genetic engineering which portend an Orwellian future. In light of recent biomedical advancements, however, a more nuanced understanding of the development of eugenic thought is necessary. Over the last few decades, some theorists, including Michael Freeden and Marouf A. Hasian Jr., have contested the traditional narrative that eugenics supported exclusively right-wing, ultra-conservative, and reactionary movements. Without discounting the very real human rights abuses carried out under the name of eugenics in the first half of the twentieth century, there is insight to be gained from teasing out the complexities of eugenic discourses and their politics in order to explain how they were, at times, aligned with radical social reform movements. In fact, many women, non-whites, and religious

[19] Though one could argue that some negative eugenic practices, like birth control (which figures prominently in *Where Are My Children*?), also coalesce with the women's movement, it is important to remember that birth control's *eugenic* use was not designed to give women freedom of choice but, rather, to control the reproduction of lower class and non-white women.

minorities co-opted eugenic discourses to find support for their social causes, and it is these unlikely eugenicists who are at the center of my project. The number of radical, feminist, and collectivist thinkers who entertained eugenic ideas can be explained, at least partially, in terms of ideological structure and compatibility. Freeden's familiar concept of "idea environments" explores the ways in which ideologies are not "exclusivist and dichotomous, based on stark contrasts" (959) but, rather, "some incompatible elements [lie] side by side with overlapping ones" (960). Though Freeden is adept at probing how eugenic social and political platforms merged with the rise of socialist ideology in early twentieth-century Britain, his discussion cuts off an important consideration which my project seeks to address: how each of the national eugenic movements stems from a common ideological foundation, which extends much further back than the twentieth century. Eugenic science has its roots in Enlightenment rationality, which strongly influenced the development of modern Western social and political thought and is still circulating in genetic engineering debates today.

If we are to do justice to the idea-environments which facilitated the rise of eugenics in Progressive Era America, we must conduct a careful examination of how the Enlightenment ideals of objectivity, reason, and human equality, followed to their logical conclusions, led—in the early twentieth century—to a sociocratic understanding of the eugenically fit human ideal; an ideal that could only be brought about through equality of opportunity, public education for both sexes, and the socialization of reproductive labor which allowed women to work outside the home and achieve economic independence. Taking seriously Adorno and Horkheimer's fears about the dangerous underside of

Enlightenment thought as it degenerates into myth,[20] my project examines how the curious confluence of radical and reactionary elements which coalesced in early eugenic thought are, in reality, two sides of the same ideological coin. Though I do not wish to dismiss Enlightenment ideology as totalitarianism like Adorno and Horkheimer do, their dialectic approach is productive in that it systematically unravels the ideological structure of Enlightenment thought and, by extension, the rational foundation on which eugenic science relies. While one must be careful not to be taken in by what Foucault has famously called "the blackmail of Enlightenment"[21] or, for that matter, an analogous "blackmail" of eugenic science, there *is* value in understanding the dialectical nuances in both movements. This value lies not in determining which elements are "good" or "bad" (which are dubious distinctions anyway) but, rather, in determining how seemingly contradictory elements are dialectically related; how they work together and are co-constitutive. Due to the co-emergence of modern scientific and cinematic technologies at the turn of the twentieth century, this seemingly strange (yet necessarily constitutive) combination of progressive thought—so distant from the contemporary connotations of eugenics—has been preserved on film. It is striking how well the ideological commitments they capture interlock with our own twenty-first-century concerns and anxieties about human heredity and genetic engineering.

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[20] Adorno and Horkheimer argue in *Dialectic of Enlightenment* that Enlightenment is an ideology which defines itself in opposition to myth by asserting that sovereignty lies in knowledge and, through knowledge, men can become masters over both themselves and nature. When we follow "the very principle of corrosive rationality" which defines Enlightenment thought to its logical ends, however, its opposition to myth breaks down (it is a false distinction). In reality, Enlightenment is myth and "Enlightenment is totalitarianism" (4).

[21] In *What is Enlightenment?*, Foucault asserts that "the blackmail of Enlightenment" is the trap of being either "for" or "against" the Enlightenment. Rather than either affirming or dismissing Enlightenment ideology, Foucault contends that we should seek to understand how we, as historical beings, have been to some degree conditioned by the Enlightenment.

As my project's archive of eugenic film will reveal, the scientific vision of human perfection that arises at this particular historical moment is inextricably linked with the remarkable yet transitory convergence of progressive politics and economics, the rise of the welfare state, the first wave of the women's movement, the outbreak of World War I, and an impassioned faith in the power of modern "objective" scientific and cinematic technologies. What these seemingly disparate early twentieth-century developments have in common is their reliance on the same source of propulsion: the cultivation of untapped human potential. The beating heart at the center of Progressive Era society is the booming factory system, its expanding veins governed by mechanization and efficiency. For the eugenicist, the human being itself emerges as the newest machine in need of becoming efficient and the nation's hygiene programs are tasked with this responsibility. Under the name of social hygiene, scientific medical and social protocols, eugenic programs, higher education, economic reforms, and state surveillance all arise as modern, Foucauldian disciplinary practices designed to cultivate the human being. These practices come to center disproportionately on women who, the eugenicists believe, are the primary sources of unexploited human possibility who can elevate the race. Human perfection, in their view, is measured by high intelligence, rationality, and mechanistic practicality, rather than the moralistic categories of virtue, the cult of true womanhood, or sentimental love, which define both the immediately preceding and subsequent periods. Furthermore, by demanding women cultivate their intellect and participate directly in the economic system, the eugenics program merges with the feminist platforms of female education and suffrage, as well as America's need for women to augment productivity during the war.

While a great number of the radical social reforms of the American Progressive Era are "progressive" in that they generated greater educational, financial, and political opportunities for women as well as sexual minorities and the working classes, it is important not to conflate the social, economic, and political platforms of the progressive movement with progress or social advancement. Cultural and technological progress cannot be viewed as a linear movement forward that is necessarily beneficial to society. Nor should we follow Adorno and Horkheimer to the other extreme, as they argue that "Adaptation to the power of progress furthers the progress of power, constantly renewing the degenerations which prove successful progress, not failed progress, to be its own antithesis. The curse of irresistible progress is irresistible regression" (28). Instead, my project explores how this dialectic—of progress and regression; of human betterment and human degeneration—plays out in early twentieth-century eugenic thought so we will be better prepared to address its resurgence in twenty-first-century debates concerning the demand for progress and the fear of degeneration that genetic engineering entails.

In this chapter, I will examine the short educational film *Our Children* (1919) and the women's feature *The End of the Road* (1918) as two representative examples from my archive. Reading them alongside contemporaneous journal articles, books, and government documents, I will reveal how the cultural, economic, and political confluence of the American Progressive Era facilitated a eugenics program centered on the perfection of the human race through the cultivation of women's untapped intellectual, social, and hereditary potential. Watching these films, it is clear that they reveal a very different Progressive Era America than the one found in Weber and Haisleden's films—not one which replaces the traditional narrative of negative eugenics and its abuses but,

rather, serves as a companion to it—a window into a forgotten counter-culture. Engaging substantially with Foucault, I will investigate how eugenic ideology relies upon a medicalized understanding of sexuality and an intensification of the body while, at the same time, the influence of American progressivism partially interrupts the deployment of sexuality. Whereas other popular films, novels, and magazine sought to keep women mired in virtuous domesticity, the governmental hygiene films recognized that the empowered woman possessed a particular brand of untapped social utility which, properly harnessed, could facilitate cultural progress. Appealing to the values and aims of an intelligentsia-led sociocracy, women became model minorities to be used in realizing the eugenicists' vision. Moreover, by appropriating several radical, collectivist, and feminist platforms of the progressive movement and putting them in the service of a capitalist economy, the eugenicists helped ideologically co-opt many liberals who might have otherwise sought socialist revolution. This notable exception to dominant understandings of Progressive Era society may provide the ideological groundwork for alternative ways of thinking about and responding to difference in the context of twenty-first-century genetic engineering.

Sociocracy, Education, and Progressive Economics

The confluence of four Progressive Era reforms and ideologies provide the necessary conditions for the development of eugenic thinking at the turn of twentieth century and can be seen in the resulting cinematic archive. They are (1) a decline in laissez-faire economics and the rise of the welfare state, (2) belief in the betterment of the nation over the interests of the individual, (3) the ability of scientific inquiry to diagnose the root causes of social and economic dilemmas, and (4) the ability of expert

professionals to develop and execute scientific solutions to existing problems. Each of these four reforms has its ideological roots in Enlightenment rationality. While the rise of the welfare state is often merged in contemporary thought with the programs of Franklin Roosevelt's New Deal which were designed to provide assistance to the least among us, in the 1910s and 1920s, the welfare state is best understood as what Lester Ward terms a *sociocracy* or the "the scientific control of the social forces by the collective mind of society" (Fine 263).[22] In other words, the welfare state arises not as a true exercise in democratic thinking but as a way for the government and the intelligentsia to manage the welfare of the poorer classes by compelling them to adhere to "objective" scientific protocols. Firmly entrenched in the "Three C's" of Roosevelt's Square Deal—control of corporations, consumer protection, and the conservation of natural resources—the Progressive Era eugenicists see themselves as Rooseveltian figures and believe in their ability to engineer a middle ground between accruing profits and providing social welfare, protecting the uninstructed classes, and conserving natural resources. For them, it is not the deposits of lead, copper, and iron ore but, rather, human "germ plasm"[23] that is their most precious natural resource. While Foucault emphasizes it is the bourgeoisie who first exercise the regulation of populations on their own bodies, it is in fact the way their bodies *reproduce with other bodies* that becomes the target of this surveillance. Moreover, by recognizing that social control is gained through the normalization of

[22] Broadly speaking, the historical information in this section is informed by: Leonard, Thomas C. "Retrospectives: Eugenics and Economics in the Progressive Era." *Journal of Economic Perspectives* 19.4 (2005): 207-224.

[23] "Germ plasm" is the umbrella term used during the Progressive Era to refer to what we now distinguish as DNA, sex cells, or chromosomes.

discourses, the eugenicists sought to make theirs the most influential voices. As Irving Fisher argues, society "consists of two classes—the educated and the ignorant—and it is essential for progress that the former should be allowed to dominate the latter. . . [O]nce we admit that it is proper for the instructed classes to give tuition to the uninstructed, we begin to see an almost boundless vista for possible human betterment" (Searle 25-6). Rather than attributing this difference in class solely to economic or educational disparities in the social landscape, the eugenics movement sees these factors as fundamentally intertwined with human heredity.

Diagnosing the problem scientifically in *The Sexual Question*, Auguste Forel asserts:

> The social value of a [person] is composed of two factors; mental and bodily hereditary dispositions, and faculties acquired by education and instruction. Without sufficient hereditary dispositions, all efforts expended in learning a certain subject will generally fail more or less. Without instruction and without exercise, the best hereditary dispositions will become atrophied. (479)

It is this dual diagnosis of problem that necessitates the eugenicists' two-pronged mission: First, through selective breeding, those of superior mental ability and learning should pass their hereditary potential on to their offspring. Second, by following a comprehensive educational program put together by the intelligentsia, the "uninstructed" can achieve their own potential. This second objective is a crucial but often overlooked component of the early eugenics movement. Since uplifting the human race through selective breeding will take generations, the eugenicists see in the under-educated classes

their "immediate object, which is to utilize in the best way possible [human] material as it exists at present" (4). Though Forel makes an effort to distinguish heredity from acquisition, they are inextricably linked in the prevailing, Lamarckian view of genetic inheritance which holds that what one acquires during one's lifetime—education, wealth, virtue—is passed on *biologically* to one's offspring. Entailed in this understanding of heredity is both a conservative justification for the social hierarchy and a rationale for social enrichment programs. It "discovers" a genetic basis for social privilege, affirms the integrity of the class structure, and blames the less fortunate for their own condition. At the same time, it outlines a genetic and social reason for making education and enrichment available to all levels of society. Far from being contradictory ideological platforms, a conservative view of genetically-based social privilege and liberal-minded social reform are in fact complementary.

During the 1910s, this vision of social uplift becomes intertwined with the mission of cinema. To assert cinema's cultural legitimacy and combat its growing association with moral decline and the lower classes, Miriam Hansen argues that filmmakers introduced a "conception of spectatorship as a medium of moral truth and social uplift" (41). Aware that film had the power not only to entertain audiences but also to serve a prescriptive function, progressive reformers advocated "the production of motion pictures in the service of moral uplift, acculturation, and the containment of class conflict" (63). They marketed cinema as an educational and democratic medium which could "submerge all class distinctions" and legitimate "capitalist practices and ideology" (64). This spirit of social collectivism—part liberation, part indoctrination—was imperative to the survival of the nation's economic system.

Underlying eugenic ideology in Progressive Era America is a fundamental social and economic imperative. Leveling the playing field through a combination of educational and financial reforms as well as generational, hereditary "improvements" offers the working class a better life, but it does so by systematically turning "them" into "us." The result of this transformation is that "what appears as the triumph of subjectivity, the subjection of all existing things to logical formalism," Adorno and Horkeimer argue, is actually "bought with the obedient subordination of reason to what is immediately at hand" (20). Enlightenment thought's dogged commitment to objectivity does not produce human masters, democracy, or equality; instead, it compels uniformity. Taken to the extreme, "under the leveling rule of abstraction, which makes everything in nature repeatable, and of industry, for which abstraction prepared the way, the liberated finally themselves become the 'herd' *(Trupp)*" (9). While the Progressive Era eugenicists' social program does, to a certain extent, employ methods of indoctrination to produce uniformity, the "herd" they envision is a better humanity: a more educated and more middle-class population with more equitable access to resources, where women are an integral part of the human race and the bearers of untapped potential ready for cultivation.

The early eugenics movement is but one of several early twentieth-century social and political programs that utilized the popular model of the welfare state to reinforce a capitalist economic system at precisely the moment when its existence was in jeopardy. Formed in 1901, the Socialist Party of America was drawing increasing support from progressive reformers, trade unionists, populist farmers, and immigrant communities. It

attracted many prominent members of the community[24] and was beginning to win seats in local, state, and national politics. Frustrated by the rise of monopolies, hazardous working conditions, and the aftermath of the Panic of 1907, protest was growing against an unregulated economic system that exploited the working class to increase corporate profit. But rather than overthrow capitalism, many progressives, including President Roosevelt, sought to work *within* the system. Through the regulation of corporations, the unionization of workers, and the expansion of public education, the United States was slowly creating more equitable working conditions, governmentally subsidized social programs, and a "better" form of capitalism. In fact, through the implementation of free public education, worker and consumer protections, and the growth of the managerial class, the United States was countering the rise of socialism and disarming the potentially dangerous proletariat by getting them into ideological alignment with capitalism, sociocratic ideals, and the belief that they were or could become part of the new middle class. Through this ideological co-optation—grounded in the Enlightenment principles of scientific rationality, standardization, productivity, and social utility—eugenics was becoming part of the complex social, political, and economic program aimed at transforming the lower levels of society from a combative "them" into a cooperative "us." In fact, as Adorno and Horkheimer argue, "reason itself has become merely an aid to the all-encompassing economic apparatus" (23). So, while socialism was taking hold in Eastern Europe and the threat of socialism at home was rising, the merging of eugenic

[24] Prominent members include, among others, Max Eastman, Charlotte Perkins Gilman, Hellen Keller, Upton Sinclair, William Haywood, and Jack London.

and capitalist ideology allowed the American government to adopt social welfare programs which, in actuality, sustained the capitalist economic system.[25]

At the center of Progressive Era America's economic mission is the need for women to cultivate their intellectual potential and participate directly in the economic system. It is along these lines that the eugenicists' goal for human betterment aligns with the feminist platforms of women's education and suffrage, as well as America's economic need for women to boost national productivity. Threading together women's plea for equal rights with what he sees as each individual's duty to the nation, President Roosevelt writes in his 1912 editorial for *The Outlook*: "I believe in women's rights. I believe even more earnestly in the performance of duty by both men and women; for unless the average man and the average woman live lives of duty, not only our democracy but civilization itself will perish." Invoking the spirit of Roosevelt's plea in the *Journal of Social Hygiene*, Allison French writes that "the struggle for the principles of democracy today demands efficiency. Efficiency demands man-power, and woman-power" (11). While French uses wartime necessity as justification for the development of "woman-power," Forel appeals directly to the inherent talents of each individual, which lie in women just as they do in men. He contends:

> When we speak of coeducation, we generally meet with the argument that the nature and vocation of women differ from those of men, and that consequently their education ought to differ. To this I reply as follows:

[25] A close correspondence between eugenics and economics is reflected in the great number of intellectuals who were both trained economists and proponents of social hygiene programs. In the early 20th century, eugenics was popular across party lines, across social ideologies, and across schools of economic thought. Examples include: Francis Galton, John Maynard Keynes, Scott Nearing, Charlotte Perkins Gilman, and Irving Fisher.

> The external objects of the world, the branches of human knowledge, in fact the subjects for study and instruction, are the same for both sexes. It is, therefore, both a useless waste of forces and an injustice to organize an inferior education for women. . . . A course of instruction as interesting as possible should be organized for each subject, without distinction of sex. . . . Part of the course of instruction should be obligatory for all, while another part intended for ulterior individual development should be optional, according to individual taste and talent. (482)

Bolstering his argument by appealing simultaneously to the Western ethos of democracy (preventing "injustice") and the logic of productivity (preventing a "useless waste of forces"), Forel posits gender equality in education as necessary to the capitalist enterprise. Following Forel's logic, the welfare state's democratic ideal of an "equal" education fuels capitalism's division of labor by re-framing it as a system grounded in individual skill and freedom of choice. This need for woman-power also extends beyond the capitalist economy to the political sphere. The eugenicists see in the educated woman a potential ally. The legalization of female suffrage, they believe, could draw to the polls primarily the educated women of the "instructed class" who share the mission of the intelligentsia. While the eugenic belief that socioeconomic and educational status have a hereditary component carries clear class and racial prejudices, this bias in favor of intelligence and cultivation makes the eugenicist the unexpected ally of the feminist.

This strategic merger among capitalism, feminism, and eugenic science as means of realizing human potential plays out dramatically in the U.S. Department of Labor's short educational picture *Our Children* (1919). In the film, an all-female doctor-nurse

team travels to Gadsden, Alabama to provide free medical care to the least among us who, the title fondly suggests, are also "our children." As the medical team arrives and sets up shop,[26] they enact their vision of socialized medicine by employing the model of the capitalist factory, run not by a big boss or corporation but by a contingent of women doctors and nurses who are presented as the epitome of scientific rationality, economic efficiency, and social service. Getting our first look inside the state's makeshift clinics, we see a lady doctor in the center of the frame, clad in all white, positioned behind an examination table which extends beyond the frame in both directions. Systematically laid out to her right are her tools: a stethoscope, octoscope, tongue depressor, and a few other medical instruments. The familiar positioning recalls a factory worker standing behind a conveyer belt, ready to tighten a nut or fasten a bolt as his products pass by. In this case, however, it is the babies themselves who pass, one by one, across the examination table. Tending to each infant, the doctor performs the same series of routine procedures which her assisting nurse anticipates, laying out a fresh towel or handing her a new instrument without ever being asked. Cutting from a medium shot of the doctor examining a fussy baby to a long shot of the crowded waiting room, we see a single row of wooden chairs lined up against the wall, each containing a mother holding a young child. Entering from screen right, a father walks into the clinic carrying his daughter in his arms and sits down in the only empty chair. Taking off his top hat, he rests it gently under his daughter's arm, helping her prop up the baby-doll she is holding. As the film makes clear, just as a

[26] When visiting segregated towns like Gadsen, the team set up two clinics—one "white" and one "colored." Despite having separate facilities, the same doctors and nurses staffed both clinics and provided the same services at no cost. While the scene I describe takes place at the white clinic, the film includes scenes from both clinics.

woman can be a doctor, so can a father be a primary caregiver. The Children's Bureau's services are not designed exclusively for mothers and children; they are open to the whole family.

Designed to introduce the public to the functions of the Children's Bureau, created in 1912 under the direction of Julia Lathrop, *Our Children* lays out the Bureau's mission to decrease infant mortality by instituting the practices of birth registration, medical examination, and the monitoring of age, height, and weight. Supporting its vignettes with explanatory intertitles, *Our Children* encourages new parents to take their children to state-funded clinics where they can be registered and begin the life-long processes of governmental monitoring and medical intervention. These practices are not, however, carried out by a covert group of government officials, but by town volunteers. The film explains: "Finding that the town . . . had no complete records of its infant births and deaths, the women decided to make one by a house-to-house canvass." Intercut with footage of the women knocking on doors are shots of them sitting at a long table tirelessly transferring the information they have received—handwritten on scraps of paper—into oversized, government-issued registry books.

While *Our Children* certainly seeks to garner public support for the Children's Bureau, its services are not limited to those families who *choose* to visit state clinics and have their data recorded; they are an integral part of the public education system. Our children are the nation's future, the film suggests, and, as such, they must be trained mentally and physically for entry into the American workforce. This training begins in the co-educational school house where, after assisting with the babies, the nurse travels to examine and instruct the school children. Stationed at the front of the classroom

alongside the teacher, she performs a quick inspection of the children's hands, feet, mouths, and ears. The line of children receiving uniform care resembles a human conveyer belt, as each child undergoes routine inspection and is turned out as though he or she were a shiny new factory-made bauble. This one-size-fits-all approach to modern medicine emphasizes the Progressive Era belief that science can objectively identify health risks and economic problems, as well as institute uniform protocols to ameliorate them. Referring to the Children's Bureau's program as a "Square Deal for American Childhood," *Our Children* emphasizes the conservation of our children's lives as precious natural resources which will serve the nation's future. After the children have been inspected, they line up in military formation and follow the nurse in a toothbrush drill. In perfect unison, they brush their teeth in concentric circles, moving from right, to center, and, finally, to the left. Presumably, through this kind of regimented education in proper hygiene, these newly-minted, clean and healthy children will be able to properly care for themselves and grow up to become productive citizens who will, one day, work in factories or serve in the military. A division of the U.S. Department of Labor, the Children's Bureau is not only designed to provide aid to those in need but, also, to help raise the next generation of workers who will serve the nation's capitalist interests.

By supporting the health of the nation's children, state welfare programs also support the nation's productivity. It is precisely this message the film offers with its next intertitle: "The business men of the town invite the Bureau's doctor to tell them how the good work may be carried on, realizing that *it pays*" (emphasis mine). Cutting once more, *Our Children* takes us inside a lecture hall where the lady doctor is standing at the front of the room, her back to us, as she uses an economic argument to sway the seated

businessmen in favor of the Bureau's welfare programs. While we cannot hear her words, we can see fervent applause erupt from her audience. Together, the film's factory-like visual imagery, the allusion to Roosevelt's Square Deal, and the mention of an economic pay-off all demonstrate how the programs of the American welfare state serve capitalism—and how educated, professional women are integral to their execution. As we have seen, within *Our Children,* a dialectic between reactionary and progressive discourses helps shape the eugenicists' program of state-sponsored socialized medicine for the collective good, modeled after Taylorsim, which will supply a healthier and more productive workforce, while governmental control and surveillance disproportionately exercised over the poor (those who need state clinics and public schools) will help mold "them" into "us." The arbiters of these eugenic programs are none other than the Bureau's contingent of female doctors, nurses, and volunteers who are, presumably, themselves the beneficiaries of a scientific education.

Positive Eugenics

At the heart of the Progressive Era eugenics movement is not only a sincere commitment to use eugenic science for the betterment of humanity as they understand it, but also a discernable anxiety about its conceivable abuse. In *The New Horizon in Love and Life,*[27] Edith Lees Ellis[28] cautions us that: "The rapid passing of eugenic laws or the over-emphasis of legislation in any form, until our human and scientific knowledge is more profound, may possibly hinder what we want to bring about" (49). These stated

[27] Ellis originally delivered this as a lecture during her American tour in 1914. It was later compiled as a book.

[28] She is the wife of Havelock Ellis.

concerns, perhaps more than anything else, suggest an awareness of the multiple meanings and deployments of eugenic science, including those abuses that, during the 1910s, were still very much on the fringe of mainstream eugenics. What separates them from their successors, particularly those associated with Nazism in the 1930s and 1940s, is not a difference in ideology but, rather, a difference in practice: in particular, a program centered on positive rather than negative eugenics. Through their cogent warnings, the early eugenicists are grabbing at the helm of the ship, trying to steer their movement away from hazardous waves and, instead, re-center their core objective: human betterment through scientific instruction and hereditary cultivation.

Within the United States, perhaps the most cogent move in this direction is the opening statement ASHA[29] President Charles Eliot includes in the very first issue of *The Journal of Social Hygiene* in 1914. Instructing his readership, he writes: "it is quite as desirable to indicate what the Association does not mean to do as to describe the positive action it hopes to take" (1). While Eliot himself does not provide a comprehensive list of what eugenics *is not*, the context in which he is writing—and a close examination of the other articles in this introductory issue—strongly suggest ASHA's vision of eugenics does not include forced sterilization, infanticide, or euthanasia. The best evidence for this

[29] Formed in 1913, ASHA was a tenuous hybrid of the social purity and sex education movements, represented by the American Vigilance Association (AVA) and the American Federation for Sex Hygiene (AFSH), respectively. Compelled by the financial investment offered by John D. Rockefeller, these groups united under the joint mission of preventing venereal disease, though they maintained ideological differences. AVA had its roots in abolition, the women's movements, and social reform through moral uplift, while AFSH was composed largely of physicians who sought to reduce venereal disease and unwanted pregnancy through prophylaxis and contraceptives. ASHA's leadership was made up primarily of former AFSH members, so this faction became its guiding force. ASHA's founding members were Charles Eliot, president of Harvard University, Jane Addams of Chicago's Hull House, Dr. Edward Keyes Jr., Thomas Hepburn, leader of the Connecticut Social Hygiene Movement, and William Freeman Snow, Secretary of the California State Board of Health.

interpretation is the careful distinction Winfield Scott Hall delineates between positive and negative eugenics in "The Relation of Education in Sex to Race Betterment," also published in this issue. While negative eugenics "seeks to avoid the propagation of the unfit," Hall explains that positive eugenics "seeks not only to promote the propagation of the fit, but furthermore to advance the efficiency of the fit" (68). In their campaign to halt the spread of venereal disease and the conception of children who will suffer birth defects as a result, Hall, Eliot, and other ASHA contributors do advocate a limited deployment of negative eugenics, but they do not lay out a more radical plan for eliminating the unfit. On the contrary, Hall is clear to point out that "stopping the breeding of the unfit can never lift the race; at best it can only arrest race decadence" (80). Negative eugenics thus has value only insofar as it can stop racial decline; positive eugenics is necessary for human progress. Determined to "uplift," "advance," and "progress" the human race, Hall outlines a eugenic vision firmly anchored in positive eugenics which, he argues, is best administered through education. The type of education Hall prescribes, which he refers to as social hygiene, includes instruction in several interrelated fields including sexual anatomy and reproduction, the prevention of venereal disease, the development of good moral character, and social responsibility. Ellis takes ASHA's warning against negative eugenics one step further:

> To obtain the very best results according to the hope of Eugenics, is surely to use, and not to abuse, or debase, or hurt, or discourage, any impulse or power in a human being which can be made into use or serve the whole community. The mixture of prudery and cant which so often assumes the name of Purity, but is as far from it as stubble is from grass, confuses the

> wise and ignorant alike in this matter, and may even actually destroy what we are trying to bring into the world. (44)

Not only does Ellis reinforce the message that, with proper cultivation, "any impulse or power in a human being" can be made to serve "the whole community," but also that those who would abuse eugenic science by "debasing, or hurting" productive human impulses are in fact "ignorant" and acting out of misguided "prudery." To a scientifically-minded eugenicist, a charge of ignorance is the strongest insult one can level. Ellis's metaphor is thus an effective one: positive eugenics is a "wise" service to the whole community, while negative eugenics is an "ignorant" abuse.

Seemingly following Ellis's advice, Eliot concludes his first article with an inclusive call to his readership: "These being its objects and aims, and its conceptions of public service in the field of social hygiene, the Association invites men and women in every part of the country, who are of this mind, to become members of the Association" (5). Contrary to the expectations of more contemporary readers, ASHA did in fact welcome men and women of divergent racial, religious, sexual, and political backgrounds. For instance, the prominent Rabbi Dr. Louis L. Mann and the African-American, female physician Dorothy Boulding Ferebee were both contributors to the journal and strategic allies of the eugenics movement. The extent to which women were involved in eugenic leadership is demonstrated by the prevalence with which they published in both *The Journal of Social Hygiene* and *Eugenics: A Journal of Race Betterment* and held positions on academic, institutional, and governmental boards. For instance, approximately one-third of the articles published in *Social Hygiene* were written by women (most of whom held a Ph.D. or M.D.) while approximately a quarter of the

Social Hygiene Division was made up of women. At a time when women could not yet vote, their prominence within the eugenics movement was extraordinary and emblematic of its commitment to honing women's intellectual potential for human advancement.

Though the progressive reformers appear sincere in their inclusive vision of eugenics as a humanitarian public service, we cannot overlook the fact that the capitalist imperative of utility is deeply embedded within Elliot, Hall, and Ellis's arguments. Their fervent belief that we should not "discourage any impulse or power in a human being" rests on the principle that nothing should be wasted; all spare or constituent parts, including the raw material of human beings, should be redirected or repurposed to serve society. Positive eugenics thus merges with capitalist ideology while negative eugenics runs fundamentally counter to it. Not only is eliminating the unfit inhumane, but it also contradicts the values of utility, rationality, and productivity which undergird American progressivism. To "waste," "debase," or "abuse" is to fail to find value, purpose, or the potential for service in our natural resources. The growing scarcity of food and supplies and the implementation of rationing programs, prompted by the outbreak of World War I, provide further ideological justification for the ethos of utility. Still, ASHA does not draw on its readers' fears of scarcity, the other, or racial degeneration to bolster its eugenic program; it appeals instead to their humanitarian commitment to elevate the human race. This plea holds greater persuasive power because it targets their deepest longings and utopian impulses. The fact that ASHA's utopian vision is tethered to an intelligentsia-led sociocracy bears out Frederick Jameson's assertion that a cultural form "which fulfills a demonstrably ideological function [and] . . . whose formal categories as well as its content secure the legitimation of this or that form of class domination" succeeds because

"all ideology in the strongest sense, including the most exclusive forms of ruling-class consciousness just as much as that of oppositional or oppressed classes—is in its very nature Utopian" (289). It is precisely when ideology is at its most blatant that it holds the most utopian content; it is the early eugenicists' investment in elitism and capitalist ideology that imbues it with liberatory promise. We should not therefore give in to the temptation to view the practice of positive eugenics as either "good" or "bad," but instead maintain the dialectic, for, as Jameson argues, "all nationalism is both healthy and morbid. Both progress and regress are inscribed in its genetic code from the start" (289). As this archive reveals, the early eugenic program is aligned simultaneously with elitism, capitalism, *and* the promises of a free public education, women's greater political, economic, and social autonomy, and the elimination of hereditary and venereal disease.

The Symbolics of Blood Vs. The Deployment of Sexuality

While the eugenicists' increasing medicalization of the body at the turn of the twentieth century provides much of the ideological groundwork for Foucault's argument concerning the *scientia sexualis*, the lingering logic of the system of alliance and the influence of American progressivism partially disrupt Foucault's deployment of sexuality by cleaving apart the four great unities upon which it relies.[30] This disruption creates the fissure through which women, along with other minorities, partially escape the pathologization Foucault describes and become valuable sources of human potentiality for the eugenics movement. In *The History of Sexuality Volume I*, Foucault argues that

[30] According to Foucault, the four great unities which facilitate the deployment of alliance are: the hystericization of women, the sexualization of children, the specification of the perverted, and the regulation of populations. Each of these strategies goes by way of the family, developing along the axes of parent-child and husband-wife. This new technology of sex operates in conjunction with the development of the medical and psychiatric institutions, the dictum of normality, and the problematics of life and illness.

along with the transition from the old system of alliance to the modern deployment of sexuality came a shift in social reproduction. Unlike the deployment of alliance which operates via static laws and prohibitions that reproduced the existing political structures and social relations, the new system "operates according to mobile, polymorphous, and contingent techniques of power" and has its raison d'être in "proliferating, innovating, annexing, creating, and controlling populations in an increasingly comprehensive way" (106-7). This "annexing" of different techniques is strategically employed by the eugenics movement as it combines new innovations in medical science and progressive economic reforms with older ideologies of religion, the family, and Victorian morality to influence the public. The proponents of eugenics do not seek to reproduce the existing social landscape but to create a better human race through the cultivation of hereditary potential and selective breeding, implemented by a technology of sex that maintains social control and surveillance over its citizens. With this shift, Foucault argues there is a simultaneous shift away from the problematic of relations and towards "a problematic of the flesh" nurtured by the development of psychoanalysis and the medicalization of the body. The strategies for regulating the body were not designed as a renunciation of pleasure or a "disqualification of the flesh" but, rather, as an "intensification of the body, a problematization of health and its operational terms: it was a question of techniques for maximizing life" (123). In other words, the logic behind the deployment of sexuality was the self-affirmation, protection, and strengthening of bourgeois life: the maintaining of social control through the high political price of its body and its survival. Whereas in earlier epochs the nobility cultivated their bloodline to mark their caste distinction and preserve it for their progeny, in the nineteenth and twentieth centuries, "the bourgeoisie's

blood was its sex" (124). The cultivation of the bourgeois body represented its political, economic, and social future.

To a certain extent, this ideology supports the eugenic cause as its proponents implement selective breeding as a scientific technique for "maximizing life" and ensuring the reproduction of the fit, or those of the educated class. This mission is carried out by requiring that one's body (and heredity) be subjected to scientific scrutiny. Through pedagogy, medicine, psychiatry, and economics, sexuality becomes a secular concern of the state which requires the social body as a whole to place itself under surveillance. Within the eugenics movement, however, this transition from "a symbolics of blood to an analytics of sexuality" is never fully complete (148). Eugenics is founded on a quasi-scientific belief in the inheritance of more or less advantageous hereditary traits through the transmission of blood from parents to offspring. Using medical science to lend credence to the idea of cultivating the bloodline, eugenics revitalizes the symbolics of the blood at precisely the time when it is giving way to the newer analytics of sex. Though eugenics depends in many ways on the transition to the deployment of sexuality, it nonetheless adheres to and extends the operation of some of the older logics of alliance. Really, it is a hybrid of the two. Even Foucault himself recognizes this in his brief discussion of eugenics in chapter four, where he states: "A eugenic ordering of society, with all that implied in the way of extension and intensification of micro-powers, in the guise of an unrestricted state control, was accompanied by the oneiric exaltation of superior blood" (149-150). The politics of family, education, and social hierarchization, as well as interventions at the level of the body, conduct, health and everyday life "received their justification from the mythical concern with protecting the purity of the

blood and ensuring the triumph of the race" (149). In this way, he argues, "preoccupation with blood and the law has for nearly two centuries haunted the administration of sexuality," for "the politics of sex remained an insignificant practice while the blood myth" triumphed at the height of the eugenics movement (149-150). Still, the cultivation of the bloodline necessitates a system of surveillance which is not carried out by the state via law or force, but by a nexus of contingent techniques of power that exercise control through the production of normalizing discourses. Peter Hegarty has argued that "the modern human sciences developed two distinct forms of normalization . . . Durkheim's socially conservative understanding of the average as the ideal . . . [and] Galton's socially progressive notion of people of unusual intelligence that might drag society forward from its currently mediocre state" (135). The former ascribes more closely to the Foucauldian model of disciplinary power which makes all people visible and subject to surveillance, while the latter—employed by eugenics—relies on the logic of sovereign power to make the most fit people visible as objects of veneration. Even as eugenics departs from static laws and prohibitions in favor of normalizing discourses, the specific discourses to which it adheres diverge from those described by Foucault. The American Progressive Era reforms partially interrupt the operation of the great strategies which facilitate the shift towards the deployment of sexuality. The disruption of the hystericization of women is particularly apparent in this cinematic archive. While the films themselves constitute a technique of power that helps produce the normalizing discourse of social hygiene, it works not by touting the average as the ideal but by venerating the ideally fit American heroine. Far from the sexually saturated, nervous woman Foucault describes, the eugenic female subject is an educated, self-restrained, rational actor who cultivates her intellect,

scientifically examines her heredity, and puts both her skills and her germ plasm in the service of society. Through the veneration of the ideal citizen (whose visual image is transmitted via film), the eugenics movement propagates its mission of human perfection.

Development of Oneself for the Service of Mankind: Educating Women through *The End of The Road*

The governmental social hygiene films of the early twentieth century follow the logic of the *scientia sexualis* to the extent that they are motivated by a frenetic concern with human sexuality and wish to compel viewers to submit themselves and their bodies to a strict program of self-management and surveillance. The ideal woman they present, however, is not the same docile body imagined by the mainstream medical, psychiatric, and religious authorities discussed by Foucault. Instead, she is both subject and subjected; simultaneously an object and arbiter of eugenic science. Collectively, these films demonstrate that women are not merely reproductive centers (wombs)[31] or the teachers of moral virtue; they are also authorities on scientific knowledge. It is women's job to manage their sexual hygiene, educate themselves, and use their skillset to serve their country. Cleverly combining women's historical role as mothers and teachers *alongside* their new role as civilian workers and intellectuals, these films employ feminist ideology to deliver their eugenic message. As I will argue, they stand apart from the more widely known eugenic films, like Weber's and Haiselden's, in three fundamental ways: they use a female narrative voice; they define a woman's fitness according to physical health,

[31] In the 19th century, doctors believed female hysteria was caused by a wandering womb. See: Tasca et al., "Women and Hysteria in the History of Mental Health." *Clinical Practice Epidemiology Mental Health*. 8 (2012): 110–119.

intellectual cultivation, and social service rather than class, ethnicity, or marital status; and they diagnose social problems as structural inequalities rather than personal failings. Insisting that female education and participation in the public sphere are central to both the national economy and human progress, they launch a thorough feminist critique of Progressive Era society and intertwine female empowerment with a eugenic worldview.

While, certainly, the eugenics movement emphasizes women's (and men's) reproductive capacity as a means to social utility, what is remarkable is that the women in these films are not *reduced to* their reproductive functions. Nor is more emphasis placed on women's reproduction than on men's. Refuting the popular myth that men's biology compels them to spread their seed while women are expected to remain pure, *The End of the Road, Fit to Fight, Fit to Win, Personal Hygiene for Young Men,* and *Personal Hygiene for Young Women* each prescribe the same single standard for men and women. They ask both sexes to practice abstinence before marriage, calling it a "square deal," thereby invoking President Roosevelt's program of honesty in public affairs, equitable sharing of privilege and responsibility, and the subordination of private concerns to the interests of the state. Tying together the notion of sexual responsibility with political and economic policy, these films use familiar rhetoric to persuade viewers in favor of eugenic behavior. As *Personal Hygiene for Young Men* states, "Have you the right to demand honor and purity of the girl you ask in marriage unless YOU are willing to offer HER a clean life?" Using capital lettering to emphasize its proposal, the film employs precisely the model of companionate marriage Ellis offers in *The New Horizons in Love in Life*. While reproduction remains a central concern within early eugenic cinema, it alone cannot improve the human race. Eugenics is just as concerned with producing—and

utilizing—fit minds as it is fit bodies. As Ellis argues, men and women can "give birth" to literary, artistic, and intellectual achievements even if they do not produce a baby "with hands and feet" (66). It is in this way that women are liberated from serving merely as wombs and can take their place among the citizenry.

The primary way the Progressive Era eugenicists sought to unlock women's potential was through a scientific education in both academic subjects and social hygiene. This dual education lies at the center of *The End of the Road*. Contesting the notion that women would become hysterical if provided the facts of reproduction, *The End of the Road* instructs women in basic anatomy, sexual health, and the transmission of venereal disease by suturing the viewer into the film through the character of Mary, who is being instructed by her doting mother. Via this relationship, *The End of the Road* uses the long-dominant model of home sex education, but gives it a modern scientific facelift and encases it within a governmentally produced, medical propaganda film. Opening with a shot of the sprawling Pocantico Hills estate, loaned for production by ASHA's chief financial backer, John D. Rockefeller, the film begins with the following prologue: "Two roads there are in life. One reaches upwards towards the Land of Perfect Love. The other reaches down into the Dark Valley of Despair." Perhaps an allusion to Robert Frost's poem "The Road Not Taken" published two years earlier, *The End of the Road* personifies these two roads through the personages of Mary and Vera. In the film's introductory scene, seven-year-old Mary discovers a nest of bird's eggs, prompting her mother to explain where babies come from as they both look upward, toward the "Land of Perfect Love," to catch a glimpse of the mother bird. While Mrs. Lee explains children are gestated within the mother's body, she lovingly draws her daughter into her lap; their

coordinated white dresses and dark curls blend together, causing Mary to once again merge with her mother's body. In stark contrast, when Mary's playmate Vera asks her mother where babies come from, Mrs. Wagner's angry visage barely looks up from her book. Remaining seated while her daughter stands awkwardly behind her chair, Mrs. Wagner twists her neck in a half-hearted attempt to face her, but fails to make eye-contact as she retorts: "That's naughty. Good little girls don't ask such questions." Turning away, Vera looks down hopelessly, as if she already knows her mother has consigned her to a future in the "Dark Valley of Despair." As the film cuts from a close-up of Vera to a long shot of the mother-daughter pair, their mismatched clothing, hairstyles, and body language accentuate their growing emotional distance.

From this initial set-up, it appears *The End of the Road* will present Mrs. Lee as an untroubled representation of the "all-nurturing, ever-present but self-abnegating" Good Mother while installing Mrs. Wagner as "the sadistic, neglectful" Bad Mother "who puts her own needs first," roles E. Ann Kaplan memorably theorizes in "The Case of the Missing Mother." Certainly, their contrasting mothering is the agential force that propels the girls down two very different roads. Mary is the successful embodiment of Mrs. Lee's model of scientific sex education which cultivates women's intellect and trains them to be socially useful citizens, while Vera is the personification of Mrs. Wagner's Victorian sentimentality which instructs women only in self-grooming, attracting a spouse, and housewifery. Following Mary and Vera from childhood to maturity, *The End of the Road* illustrates the successes of the first model and the follies of the latter, not only for the women themselves but also for society. These contrasting scenes continue as a now teenage Mary sits on the arm of her mother's chair, their bodies

gently resting against one another as Mrs. Lee reads from Jane Potter's *Relationships: Written for Girls in their Teens*. Far from the "oppressive closeness" Kaplan describes in the later maternal melodramas like *Stella Dallas* (466), here, the mutually supportive mother-daughter relationship is instrumental to Mary's development. Cutting in to the page Mrs. Lee is reading, the frame fills with a few short lines, informing the viewer of the topic of today's lesson: "this ignorance [of sex] is the cause of so much unhappiness in youth." This text is strikingly similar to that found in *Social Hygiene*, offering a dramatization of Eliot's words in that very first issue: "in light of present knowledge these policies of silence and inaction are no longer justifiable" (2). This is not a coincidence given screenwriter Davis's position within ASHA and her involvement with the journal. In 1918, the same year of the theater takeover in St. Paul, Davis penned an article in which she reports on the state of women during the war. Responding to her critics who, she anticipates, might suggest sex education will cause women to react hysterically, she asserts:

> There is no reason to fear that women cannot bear to know the truth concerning one of the greatest problems which confronts our nation at this time: That is, the peril—physical, mental, moral—in the prevalence of disease which unfit men and women for happiness and success in any walk of life, which disqualify thousands of young men for active military duty—which interfere with industrial efficiency . . . conditions never could have reached their present state if discussion on certain questions had not been taboo and if it had not been held for so many generations . . .

> that women should not know the real truth in regard to sexual relationships. (526)

In this passage, just as quickly as Davis acknowledges the twentieth-century stereotype of the hysterical woman, diagnosed by Freud and considered part of the deployment of sexuality by Foucault, so she dismisses it as not only empirically unfounded but also dangerous to national health, security, and economic prosperity. In its place, she offers a new feminine ideal: the scientifically educated woman who is integral to America's success, both at home and on the front lines.

By using women's voices (Mary's, Mrs. Lee's, Potter's, and Davis's) to deliver a scientific sex education, *The End of the Road* also departs from films like *Where Are My Children?* and *The Black Stork*. As Stamp observes, the feminist argument in favor of women's reproductive control in *Where Are My Children?* is not delivered "by giving women a voice in the courtroom or in the film's narrative, but by using Dr. Homer's testimony, the testimony of a medical expert, to stand in for the women's voices" (122). Similarly, in *The Black Stork*, it is the young physician Dr. Dickey who acts as the foremost authority on reproductive rights and eugenics. In fact, the conflict between Victorian moralism and modern science plays out between the Progressive Dr. Dickey and his two older, male colleagues, their advanced age evident in their poor posture and slow, affected gaits. Positioned between the two medical authorities, the mother and child in question are reduced to serving as the objects on whom eugenic medicine is practiced. Only the government's hygiene films allow women to speak for themselves; in fact, by installing women as doctors in *Our Children* and, as we will see, by training Mary as a

nurse in *The End of the Road,* the women themselves become medical authorities whose voices carry the weight of college degrees and professional experience.

Mrs. Wagener's failure to teach her daughter to be a eugenically conscious, modern woman plays out to dramatic effect as *The End of Road* picks up where I have left off. A companion scene to Mary's educational lesson with her mother, the next shot follows Vera to her backyard where she is sitting a few feet from her mother, each of them silently engrossed in their own reading. Putting down what appears to be a fashion magazine, Mrs. Wagner grimaces at her daughter's youthful appearance: "I think you ought to put your hair up. No man wants to rob the cradle." Vera self-consciously runs her fingers through her hair, never bothering to respond or even look up from her romance novel. The marked contrast in Mary and Vera's reading material is symbolic of their differing ideological commitments: Vera's novel represents sentimental ignorance[32] while Mary's educational manual symbolizes scientific knowledge. Mrs. Lee's patient reading illustrates her devotion to her daughter's intellectual and social enrichment, while Mrs. Wagner's comments are directed exclusively at her daughter's appearance and ability to attract (older, wealthier) men. The result is that while Mary is learning to become self-sufficient, Vera is preparing for a life of emotional, intellectual, and economic dependence. As the camera cuts to a wide shot, the Wagner women's wicker chairs anxiously hug opposite edges of the frame, allowing the empty seat next to Vera to

[32] During the 19th century, the sentimental novel played a crucial role in women's educational development and emancipation. It was through these novels that women learned to read and absorbed much of the content of their social and scholastic education. During the early 20th century, however, a great shift took place as the sentimental novel became repudiated as unscientific, silly, and indulgent. It became a part of women's leisure time, rather than an educational tool. Increasingly, the romance novel became a marker of domesticity, romance, and imagination, which stood in opposition to science, rationality, and learning.

fill the center of the frame. It suggests not only the emotional emptiness of their relationship, but also missing parental guidance and support. Her tight shoulders and closed off body language are a far cry from the way Mary gingerly kissed her mother's hand as she listened to her read. While the film openly touts the home education model and recommends printed books for mothers to use with their daughters, it is ironically the failure of this model—and these instructional materials—that necessitates the production of films like *The End of the Road*.

Watching the film, what is more remarkable than its frank discussion of sex and venereal disease is its proposition that women should cultivate their potential by pursing a college education, obtaining a career, and achieving economic independence before marriage. The film dramatizes these recommendations through the trajectory of Mary's life. On her commencement day, Mary takes the stage to deliver a speech. Shot from a low angle, Mary appears large and regal as she presents a call to duty to her audience, seated below. Complementing Mary's eugenic declaration that "there can be but one truly great ideal—development of oneself for the service of mankind," the scene both visually and linguistically invokes the women's suffrage movement. Mary is standing, tall and proud, in front of a table, draped in an American flag, and decorated with what appears to be a bowl of roses, the national symbol for female suffrage. Using shot/reverse shot editing, the film cuts from Mary onstage to a shot of her classmates. By virtue of taking place at an all girls' school, there is a transposition between a female speaker and a female audience, resembling the constituency of a women's rights convention. Moreover, the message Mary delivers is one of personal and career development for social utility, rather than one of wifery and motherhood for one's husband and family. After all, Mary

does not say she and her classmates owe it to *themselves*, or to *their children* to reach their full potential; they owe it to "mankind." Given the film's eugenic context, this potential can be read both in terms of the young women's skillset during their lifetime and in terms of their heredity.

It is precisely this belief in women's social utility that underlies Eleanor Wembridge's argument in "The Professional Education of Women and the Family Problem." She argues: "public opinion which now demands social utility of men should expect the same of women. It should become a matter of course for a married woman to regard her training as a sacred birthright, and as a debt which she owes to society in peace, just as the skilled service of the trained nurse who had married and left her profession has been demanded as public right during the war" (195-6). Writing two years after the conclusion of World War I, Wembridge invokes the notion of women's wartime service in an effort to carry women's roles over into peacetime. Having demonstrated their ability, many women wanted to continue working but were let go to make room for returning men and reinstitute pre-wartime gender roles. Progressive reformers like Wembridge appealed to progressives' sense of social service to sway public opinion in favor of feminist propositions, arguing that skilled women represent the best "chance of supplying society with the trained help it needs. Over and over again second-rate and untrained help must be hired and endured, simply because men or women of training and experience were not available" (194). Taking Wembridge's proposition one step further, President Roosevelt writes in his 1913 autobiography that our society would benefit politically, economically, and socially if women were to "have free access to every field of labor which they care to enter, and when their work is as valuable as that of a man it

should be paid as highly" (86). If women could reach their full potential, find their proper place within the division of labor, and provide woman-power as fuel for the capitalist machinery, Wembridge and Roosevelt suggest, we would have a more efficient and productive society.

Recognizing that the demands of marriage and motherhood are incompatible with women's professional advancement in their current configuration, Wembridge identifies the "family problem" not as a personal one which can be solved by individual women but, rather, as a societal one which has its roots in the prevailing social and economic structures. As such, she argues, it requires a social solution. Rethinking the structure of the American household, Wembridge proposes that educated women work outside the home either full- or part-time, while what is traditionally considered women's work—namely, cooking and child rearing—be outsourced to communal kitchens and nurseries, staffed by professionally trained, married women. Merging feminist theory with eugenic ideology, she explains how her proposed solution will quell the persistent fear of race suicide that loomed in eugenic circles during the 1910s and 1920s. She argues:

> it has been said very often in the last few years that it is undesirable for the educated men and women of America to have small families of children, while the less educated part of the population, with perhaps more limited natural endowments, and certainly lower standards of living, were having families two or three times their size. The responsibility for the smaller-sized family has often been laid at the door of the educated woman herself, who has been accused of failing to see her social obligation, and of

> declining to marry, or if she did marry, of refusing to do her part in bearing and rearing a sufficient number of children. (181)

While Wembridge asserts that it is not her project to be "concerned with the truth of the above assertions" (181), she uses them as a springboard for her argument: that communal nurseries and kitchens will remove one of the largest obstacles facing career women. The implementation of socialized domestic labor will allow married women to continue working, thereby making marriage "more attractive to many gifted girls who are at present rather impatient of its sacrifices, and it would make technical skill far more attractive to the average marriageable girl if she could see that her training did not interfere with her marriage" (194). Wembridge's program of positive eugenics here operates on two levels: it encourages the middle- or upper-class "gifted girl" to do her eugenic duty of marrying and bearing children, and it provides a means for uplifting the socially disadvantaged girl who may view marriage as her only option for financial security. Pursing further education will allow the latter girl to improve her station in life, thus making her a more fit mother to her future children and a more socially useful member of society. And, according to the progressives' Lamarckian understanding of heredity, this increased fitness will be passed on, biologically, to the next generation.

Strategically appealing to her readership's growing faith in scientific knowledge and empirical data, Wembridge bolsters her argument with psychological research. Treating the problem scientifically, she combines her own research with Freud's work on early childhood development to contend that "parental love is a great force, but an untrained love is not a substitute for wise parenthood" (191). In fact, modern psychology has shown that the increasing problem of the "spoiled child" is the result of

overindulgence and over-attachment to the mother, which results in the child's "later struggle to free himself and live a life of his own" (191). It is therefore the prevailing social structure, in which stay-at-home mothers' lives revolve around their children, that is harming the nation's children. She continues:

> Freud makes so persistently [clear] that early emotions are ineradicable . . . that the earliest types should so often be solely the overindulgent, doting, and nervously overstrained mother, or the careless, irresponsible nursemaid—both detrimental to his welfare, rather than the attendant who is a careful and intelligent mother of her own, and therefore both interested and yet sufficiently detached. (192)

Psychological research here counters the value of the stay-at-home mother. In Wembridge's collectivist vision, the communal nurseries would be run by professional women who would collaborate with the parents and provide the children with peer socialization. Similarly, the kitchens would be run by women with culinary training capable of cooking for large groups. This would be labor saving and cost effective, particularly as food and money were scarce after the war. Finally, "the modern educated woman is a conscientious person," Wembridge concludes. "She has no desire to shirk her duty to her family or to the great collection of families which we call society. She has simply begun to see her duty in a new direction" (196). Combining women's historical role as wives and mothers with their new role as professional workers and arbiters of eugenic science, Wembridge re-writes the duty of the Progressive Era woman.

Though a twenty-first-century audience might envision communal kitchens and nurseries to be bleak, sparse, and utilitarian, much like those operating during the decline

of the Soviet Union, a vastly different picture would come to mind for a Progressive Era audience. They would likely conjure visual images akin to those of the sprawling, palace-like state-operated homes in the second release of *The Black Stork*.[33] By the 1920s, the rise of the welfare state and the success of its early anti-trust, labor, and housing programs had generated widespread confidence that state-run cooperatives could provide a superior environment to what many families could afford. While Charlotte Perkins Gilman's rather similar argument in *Women and Economics* proposes a fully socialized system of domestic labor, Wembridge's entreaty is a psychological one which focuses on the well-being of the children. To that end, she does not specify whether she intends her programs to be either fully or partially state-funded and operated, or privatized and paid for by the families who use them. Even if we assume that, like Gilman, Wembridge intends for at least some state cooperation, her proposal is in alignment with both the material and ideological needs of capital. First, her proposal cleverly exploits the growing frustration among some middle-class Americans who feel social welfare programs are disproportionately enriching the poor while leaving them behind. Through communal nurseries and kitchens designed to assist not only the lower classes but the professional and upper-classes as well, Wembridge's proposal strategically merges collectivism with the particular interests of the educated and the wealthy. In fact, despite appearing to be a

[33] In *The Black Stork*, Pernick argues that between the original 1917 version and its re-release in 1926, a change was made to dramatize the economic effect housing "defectives" has on society, reflecting the shift from a laissez-faire economy to a welfare state. The 1917 version emphasizes the economic problems that plague the family raising the defective, while the 1926 version states that defectives are housed in state-funded "palaces" while "normal children" live in "dingy hovels." As the film makes clear, it is the viewer's normal children and society as a whole who pay the price for housing defectives. If we simply allow them to die (or never be born), then the state could invest in welfare programs to help those of us who are—or will become—part of the labor-force.

socialist reform, by virtue of their place within the larger economic system, her communal kitchens and nurseries are poised to assist in the division and specialization of labor, transform reproductive labor into a productive activity that can be monetized, and pool resources to increase national productivity.

Though *The End of the Ro*ad does not present Wembridge's vision of communal kitchens and nurseries, it does demonstrate the folly of women who prepare only for marriage while neglecting to cultivate their own talents. Vera is the quintessential model of what Wembridge refers to as the girl "who cannot know for sure if she will marry" and, if she does not, will have no professional training to fall back on (196). Mrs. Wagner's large frame towers over her daughter as she insists Vera should take a retail job in New York City because: "If you had a position there you might meet some wealthy young fellow." As the film's intertitle spells out: "Mrs. Wagner won't be satisfied till Vera trades that diploma for a marriage license." With an iris-out, the circular frame becomes smaller and smaller until all we can see is the anxious, doe-eyed expression on Vera's face. The palpable naiveté in her visage contrasts sharply with the mature up-do she is now sporting, signaling she has adopted her mother's advice.

On the other side of the road, so to speak, Mary's companion vignette illustrates the triumph of the scientific sex-education model in teaching her to be a rational young woman who follows eugenic protocols for self-cultivation. While Mary runs inside to grab a book, her suitor Paul Horton takes advantage of his moment alone in the garden with Mrs. Lee to ask for her blessing to propose. Interestingly, in this scene, Paul asks Mary's mother, not her father, for her hand. In fact, Mary's father does not appear at all. Unlike in the maternal melodramas Kaplan describes where the Good Mother is relegated

to a position of "absence and silence analogous to the male relegation of her to the periphery" (466), here, it is the father who is so consigned. He is given no more than thirty seconds of screen time throughout the film and he never speaks (i.e., has no intertitles). His only actions are kissing his wife and daughter in the garden and clapping at Mary's graduation. While Mr. Lee occupies the traditionally feminine place of the spectator, Mrs. Lee emerges as a subject and bearer of the gaze by doing precisely what, Kaplan argues, mothers in melodramas typically do not: "she resists her culturally prescribed positioning" (476). She refuses to make room for her daughter's suitor or to become a spectator to their budding relationship; instead, she takes her place, narratively and visually, at its epicenter. It is thus Mrs. Lee, not Paul, who emerges as the viewer's vehicle of identification in this scene. Responding viscerally to his request, Mrs. Lee's eyes dart away from Paul, conveying a silent aside to the audience. Through her authorial gaze, we are made to feel her displeasure; we identify with *her* at *his* expense. But unlike the Victorian or Progressive Era mother Foucault describes as a "'nervous woman' [who] constituted the most visible form of this hystericization" (104), Mrs. Lee does not allow her emotions to engulf her, overreact to the situation, or faint from excessive stress. On the contrary, she remains exceedingly calm, collected, and deliberate. Assuming her daughter possesses the same capacity for sound judgement, she avoids making a decision on Mary's behalf or suggesting they bring her husband into the conversation. Instead, Mrs. Lee asks Paul: "suppose we find out how she feels about it." Through this exchange— twice removed from traditional, gendered customs— *The End of the Road* not only critiques the patriarchal convention of asking a father for his daughter's hand, but also reassigns authority, taking it away from the custodial parents and giving it back

to the young woman. The film continues its critique of Paul (and the patriarchy he represents) by making it clear that by going to Mary's mother, he has failed to recognize Mary's autonomy and will therefore likely fail in his romantic pursuit.

Once Mary rejoins them in the garden with the book she has retrieved, Mrs. Lee leaves the young adults alone to talk. Symbolically taking the book out of Mary's hands, Paul delivers his proposal. While there is no intertitle to capture his dialog, we can assume he is asking Mary to close the chapter on her education to become his wife. In a gesture that mirrors her mother's, Mary's eyes bulge uncomfortably as she looks away from Paul. After some consideration, she turns back towards him, her long, youthful braid positioned between them, tied off at the end with a polka dot bow. "We're too young to think of marrying," she shrugs. While in the previous scene it was Vera's doe-eyes that contrasted with her mature hairstyle, here, Mary's wise eyes, reminiscent of her mother's, contrast with her girlish braid. In *The End of the Road*, the women's eyes deliver asides to the audience, cuing us in to their level of internal maturity, while their hairstyles work instead as diegetic cultural symbols, communicating to potential suitors whether they are eligible for marriage.[34] Firmly taking back her book and looking determinedly up at the sky towards "The Land of Perfect Love," Mary tells Paul she has been accepted to nursing school and "of course I'd want to graduate before I could think about getting married." Paul tries to take her hand, but Mary rebukes the gesture, clinging instead to her book. Rather than turning down his offer outright, she suggests they "wait

[34] In 19th and early 20th century America, it was customary for girls to wear their hair long, while adult women wore their hair up. Putting her hair up was therefore a sartorial rite of passage for a young woman which indicated she was available for marriage. See: Ruthann Robson, *Dressing Constitutionally: Hierarchy, Sexuality, and Democracy from our Hairstyles to our Shoes.* Cambridge: Cambridge University Press, 2013.

awhile" and revisit things in the future. Mrs. Lee's home model of scientific sex education is vindicated through the actions of her daughter.

Even more significantly, the mutually supportive mother-daughter relationship is cemented at the expense of Paul, the film's strawman for male patriarchy. Whereas in the maternal melodramas, as Kaplan discusses, "the very mutuality of this Mother-daughter relationship makes it even more threatening and in need of disruption, . . . [and] this love must be punished not only because it excludes men . . . but also because of the threat that deep female-to-female bonding poses in patriarchy" (475), in *The End of the Road*, female bonding is protected while heterosexual relationships are relegated to the periphery. This is reinforced as Vera and Mrs. Wagner's "negative bonding," which "offers a kind of protection for patriarchy" (475) is shown to lead to the Dark Valley of Despair. While the Good Mother/Bad Mother dichotomy is established at the film's outset, the characterization of the Good "Mother-as-spectator, Mother-as-absent" (475) and "Bad Mother as present but resisting" (476) is ultimately disrupted as Mrs. Wagner's emotional absence and lack of involvement are shown to harm her daughter while Mrs. Lee's active role in Mary's life allows her to realize Kaplan's call for "Mother as participant, initiator of action" (477). Though we are still not privy to Mrs. Lee's personal life away from her daughter (it is unclear whether she works or has a full life outside the home), she is permitted the full pleasure of the mother-daughter relationship. Since Mrs. Lee never attempts "to inculcate the patriarchal 'feminine' in" Mary, there is no impetus for Mary to feel "anger" or "react against" her mother (466) by severing their relationship in a decisive act of independence. *The End of the Road*'s eugenic mother-daughter relationship thus escapes many of the patriarchal pitfalls of other maternal melodramas.

Alongside its primary lesson about cultivating one's intellectual and hereditary potential through positive eugenics, *The End of the Road* intertwines a single vignette on negative eugenics through the personage of Mrs. Elbridge.[35] Contrary to the eugenic movement's later abuses, here, the use of sterilization to prevent the propagation of the unfit is voluntary and located on the body of a white, upper middle-class, sexually faithful, married woman. Substantiating Foucault's argument that the regulation of populations is "applied first, with the greatest intensity, in the economically privileged and politically dominant classes" (120), the wealthy and virtuous Mrs. Elbridge is the film's visual embodiment of the unfit. Though Foucault argues that by the early twentieth century the "the bourgeoisie's 'blood' was its sex" (124), for the early eugenicists, it is both their blood *and* their sex that must be regulated. Sutured into the film through Mary's perspective, we follow her to New York where she takes up a post alongside the physician Dr. Bell. The first patient they treat is Mrs. Elbridge who unknowingly contracted gonorrhea from her husband,[36] causing her son to be born blind. Sitting with Dr. Bell in her lavish drawing room, the sophisticated Mrs. Elbridge explains she has called him there to deliver her decision: "I have made up my mind to have the operation." She wants to be sterilized so she will not bear any more children with gonorrhea-related birth defects. While eugenics has long been associated with the practice of forced

[35] Given that Katherine Bement Davis and Eleanor Wembridge were acquainted with one another through their membership in ASHA, it is possible that Davis's naming of Mrs. Elbridge is a slightly veiled reference or tribute to Mrs. Wembridge and her work.

[36] During the Progressive Era, a platform in both the eugenics and feminist movements was the repudiation of the "medical secret." The medical secret had two parts: doctors did not notify or test the wife when treating her husband for venereal disease, and the doctor concealed from the wife the source of her own infection if she sought treatment. In 1904, Dr. Morrow estimates that, due to the "medical secret," there may be a higher incidence of venereal disease among housewives than prostitutes. See: Prince Morrow, "A plea for organization of a 'Society of Sanity and Moral Prophylaxis.'" *Medical News* 84 (1904): 1073-1077.

sterilization, disproportionately practiced on poor women, women of color, and the mentally ill, here, it is Mrs. Elbridge herself who approaches her doctor to inform him of *her* decision. Taking place at her estate, surrounded by her possessions, the scene depicts Mrs. Elbridge as in control. She and Dr. Bell are seated next to one another in comparable chairs and positioned at the same height. This staging is a far cry from many of early cinema's doctor-patient scenes (including some which take place later in this film), where the doctor towers over a reclining patient who is confined to a hospital bed. Far from a victim of state policy or a weak woman who has been pressured into sterilization, Mrs. Elbridge is represented both visually and rhetorically as a strong woman who has carefully weighed the evidence and made up her own mind. Explaining her reasoning, she states: "I never want to bring another child into the world to pay as little Russell is paying for the sins of his father." It is this mode of informed, voluntary sterilization that is emblematic of the Progressive Era eugenics movement. While Indiana became the first U.S. state to legalize compulsory sterilization in exceptional cases in 1907, it was relatively uncommon and rates of involuntarily sterilization remained low into the 1920s. In fact, due to both legal challenges and humanitarian outcry, including from some members of the eugenics movement, the Indiana Supreme Court declared the law unconstitutional in 1921. It was not until the highly controversial Supreme Court case *Buck v. Bell* (1927), which legitimized forced sterilization for patients at a Virginia home for the mentally disabled, that the practice of involuntary sterilization became widespread and broadly associated with the eugenics movement. [37]

[37] During the 1930s and 1940s, forced sterilization increased dramatically, leading contemporary researches to estimate 64,000 individuals, mostly women, were forcibly sterilized in the U.S. during the first half of the twentieth century. For more information on these abuses, and the gender and racial politics that

With this later, racialized, and sexist incarnation of eugenics in mind, it is all the more remarkable that, in this vignette, it is a white, educated, married, middle-class woman who chooses sterilization after tutoring herself on the medical literature. Walking both Dr. Bell and her husband through her decision, she herself becomes, to a large extent, the authority in the room. Through this momentary reversal she inverts Foucault's model; rather than medical discourse acting upon Mrs. Elbridge's body, she instructs the medical authority (Dr. Bell) on how she would like her treatment carried out. Instead of following films like *Where Are My Children?*, which try to persuade white, middle-class, female viewers that unfit women should either be sterilized or use birth control on the basis of race, poverty, or mental illness, *The End of the Road* speaks to the ostensibly fit woman about the conditions that might threaten her fitness. With this information, the viewer can avoid these pitfalls or, if she finds herself already compromised, make a decision like Mrs. Elbridge's. Underlying these films' divergent messages is a discrepancy in their definition of fitness. In *Where Are My Children?*, Stamp argues that "moviegoers are invited to embrace legal contraception [and family planning] through a racist and classist appeal to eugenics and a story about the perils of unchecked sexuality" (100) since its definition of fitness lies exclusively in a woman's class status, ethnicity, and marital fidelity. Fitness in *The End of the Road* depends instead on a woman's physical health (notably her freedom from venereal and hereditary diseases), her education, and her social utility. In a moment of poignant contrast with Weber's film where Richard asks his wife Edith "Where are my children?" after learning she has

disproportionately targeted poor women, women of color, and the mentally ill, see: Hasian Jr., Marouf. *The Rhetoric of Eugenics in Anglo-American Thought*. Athens: The University of Georgia Press, 1996.

aborted her pregnancies, here, Mrs. Elbridge's great act of service to society is her decision *not* to have more children. Moreover, while Weber's film "lambast[s] Edith and her privileged circle of friends for avoiding motherhood" (118), by *The End of the Road*'s logic, idle women like Edith are unfit for motherhood. Their sin is not their desire to resist motherhood but, rather, their lack of personal cultivation. By refusing to develop their potential, they are allowing their germ plasm to degenerate which, according to their beliefs, will affect the next generation.

Even as *The End of the Road*'s narrative relies heavily on the metaphor of the two divergent roads, suggesting the viewer has the ability to follow in the footsteps of either Mary or Vera, it does not erroneously suggest all responsibility lies with the individual. In fact, rather than presenting Mr. Elbridge, or even Vera, as unredeemable characters, the film fleshes out the social conditions which influenced their behavior, providing a compelling critique of Progressive Era society. Chronicling Vera's array of misfortunes—her inattentive mother, her financial need to seek employment in an unsavory environment, her naïve nature that leads her to trust a cunning paramour, and her lack of knowledge about sex which leads her to contract syphilis— *The End of the Road* paints a moving picture of an America plagued by an unequal distribution of wealth, unsafe working conditions, sexual assault, and gender inequality. As the film illustrates, silence on sexual hygiene, meant to guard women's purity, is precisely what causes them to fall victim to exploitation, abuse, and disease. Dr. Bell conveys this message to Mrs. Elbridge in her drawing room: "Ignorance, prudery, and false standards are more to blame than your husband." While one could argue Dr. Bell is letting her husband off the hook, a more adept reading is that he is calling attention to the bigger

picture. By diagnosing the problem at the level of society rather than the level of the individual, *The End of the Road* demands change at the macro level.

Just as *The End of the Road* contrasts Mary with Vera, so it contrasts Mary's two suitors, Paul and Dr. Bell, as they travel down drastically different roads following her rejection of their courtship. Dr. Bell operates according to the eugenic principle of self-restraint, whereas Paul is the personification of the sentimental young man driven by his unrestrained sexual appetite. A few days before he is to sail for Europe, Paul takes Mary to a café where he proposes once again. When Mary turns him down, explaining: "I have work to do, too, Paul. I've volunteered for overseas service. I can't marry you," a visible change comes over him. His eyes quickly dart back and forth, he blinks several times, and he leans across the table, drawing himself closer to her. "Can't you give me yourself until I go?" Cutting to a close-up of Mary's face, we see her eyes close and her shoulders slump. It is as if the affection she once felt for Paul has been drained from her body. Turning to face him, she retorts: "Paul, how could you suggest such a thing! You, who said you loved me. Why you don't know what love means!" The film cuts to a medium shot as Mary tilts her head downward, allowing her hat to cover her face. The decorative lines on its top and brim blend with the branches behind her, just outside the café window. With Paul's gaze fixed firmly on Mary, it is as though we are seeing her through his eyes: she is a faceless woman, fading into the scenery. Her momentary disappearance is a visual representation of Paul's devaluation of her. In stark contrast, a few scenes earlier, when Mary tells Dr. Bell she cannot commit to him because there may be "a boy back home," the self-restrained physician privileges Mary's feelings over his own. Standing together against the railing of a bridge, it is Dr. Bell who withdraws his gaze,

casting his eyes down at the wooden planks below. Unlike Paul who leans closer to Mary at the moment of rejection, Dr. Bell draws his hand away, towards his own body, and takes a half-step back, symbolically giving Mary the space she has asked for. After a moment, the two amicably shake hands and finish their walk across the bridge, disappearing together off screen left, leaving only the sun's rays dancing across the water. The intertitle informs us: "Friendship survives Love's denial and a fine comradeship with Mary is Dr. Bell's reward."

Through these two contrasting scenes, *The End of the Road* dramatizes not only the differences in the men's training but also the successful effect of a woman's eugenic education as outlined by Hall. In *Social Hygiene* he argues that "instruction in eugenics will destroy that sentimentalism which leads a woman deliberately to marry a man who is absolutely unworthy of her and can only bring disease, degradation, and death, and that maudlin so-called love which is blind to imperfections that are so glaring that they might be seen through opaque lenses. What instruction in eugenics will accomplish is to establish a psychic inhibition at the threshold of love" (79). This is precisely what Mary's education does; it creates a "psychic inhibition at the threshold of love" and prevents her from falling victim to the "disease, degradation, death, and maudlin so-called love" which Paul offers and which continues to plague Vera, her friend and dramatic foil. By dismissing Paul entirely but remaining friends and colleagues with Dr. Bell, Mary demonstrates she has eschewed "sentimentality," hasty marriage, and young motherhood in favor of self-restraint, personal cultivation, and social utility. Through the distinction between sentimentalism and Perfect Love, both Hall and *The End of the Road* insist the problem is not emotion per se but, rather, unrestrained appetites, untrained love, and false

appeals to the heart as a form of manipulation. Unlike phony romanticism, Perfect Love and self-cultivation go hand in hand. By this logic, perhaps the "psychic inhibition at the threshold of love" Hall describes is not a prohibition against love at all but, rather, a prohibition against lust and infatuation: against that which is hasty, impulsive, and unconsidered. Hall's "psychic prohibition" therefore seems to be an ingrained sense of rationality—the practice of pausing before acting, of taking a moment to think logically rather than allowing oneself to be overcome by emotion. This is emblematic of eugenic thinking; Enlightenment rationality privileges objective logic and social utility over subjective emotion and person experience.

Certainly, by introducing rationality into a profoundly irrational experience like falling in love we risk sanitizing the experience and stripping it of its excitement and spontaneity. This is perhaps why a discussion of "perfect love" frequently appears in both Progressive Era scientific journals and in eugenic cinema. In fact, it is an opposition between love and eugenics which, Pernick argues, lies at the center of most Progressive Era anti-eugenics films, including *Eugenics at the Bar 'U' Ranch* (1914), *Snakeville's Eugenic Marriage* (1915), *The Regeneration of Margaret* (1916), *Wood B. Webb and the Microbes* (1916), and the aptly titled *Eugenics Verses Love* (1914). In this last film, a breakfast food company sponsors a eugenic contest to find the perfect husband for a young woman. But, rather than marry the eugenically fit woman the judges have selected, the winner runs off with his own beloved. "The eugenic belief that rational science should outweigh passionate love as the motive for mating made eugenics a tempting target for comedic ridicule," Pernick argues. "The same conflict between science and love also made eugenics a fitting obstacle to be surmounted in romantic melodrama. . . .

'Love Conquers Eugenics' fit the formula precisely" (130). The popularity of this narrative drove many early eugenicists to counter what they saw as a misapplication of eugenic thought. In the anti-eugenic films, as well as in the popular press, a "eugenic baby" was a child born to two randomly-selected parents who were of fit mind and body, but were not drawn to one another by love. Introducing its regular column in which five prominent eugenicists weigh in on a controversial question, the editors of *Eugenics: A Journal of Race Betterment* ask in their debut issue: "Are Eugenic Babies Eugenical?" (20). While in future issues respondents would take differing positions, here, they all give the same answer, which is incorporated into the column's title: "Five Eugenicists Answer 'No!'" (21). Rabbi Louis L. Mann writes: The "so-called 'eugenic baby' that has received so much attention throughout the country, has nothing at all to do with eugenics. It is merely a misnomer, created by the press to attract attention. . . . [E]ugenics most vigorously condemns this procedure" (21). Psychologist William McDougall adds that, despite accusations that eugenicists are "advocating methods of the studfarm in human reproduction," true eugenicists combine hygienic protocols *alongside* love and marriage (20). It is this merging of the irrational concept of love with the rationally-derived principles of eugenics that we find in *The End of the Road*. Throughout the film, Mary uses the protocols of eugenic science to guide her decisions regarding love, transforming it into a psychologically scientific process. In fact, Hall contends that true love, or perfect love, can *only* exist if it happens between two people who are, eugenically speaking, well-suited. By the same logic, he implies that if we *think* we are falling in love with someone who is "unworthy of our affections," then it must be "maudlin so-called love," which is not love at all. Interestingly, while Hall and *The End of the Road* are quite

instructive about how to identify and reject a bad love match, they are far less concerned with illustrating a good love match.

The End of the Road's conclusion presents its strongest merging of feminist and eugenic ideology. Contrary to Colwell's characterization of *The End of the Road* as fundamentally a "love story" that teaches sex education and eugenic relationship protocols through the contrasting depictions of "Paul's brashness" and "Dr. Bell's proper courtship" (50), Davis herself provides a rather different synopsis in the *Journal of Social Hygiene*. Her description centers on the "difference in training between the two girls"—one who is "actuated by a desire to be of service to the world," and the other, whose desire is "only to attract . . . the attentions of a man"—and how this difference shapes their development (558). Only in the last sentence of the paragraph does Davis add the following parenthetical: "The love story (believed to be necessary to hold the interest of the young women who see the film) is skillfully interwoven" into the film's narrative (558). By Davis's own account, the love story is merely an addendum to the lesson on women's professional empowerment and the value of a modern sex education. Colwell, however, goes on to assert—in a short section entitled "Davis as Auteur"—that her emphasis on women's professionalization is really her own eccentricity, for "ASHA implicitly endorsed women's role as mother and homemaker" (63). In fact, Colwell argues that Mary's refusal of Paul on account of her career—arguably the film's most pivotal plot point—is "a bold explanation given eugenic alarm at bourgeois women's employment" (63). Instead of viewing *The End of the Road* as the ideological culmination of ASHA's merger with the U.S. Department of War, Colwell believes Davis's screenplay advances her own agenda at the expense of what, she argues, are two

of ASHA's dictums. First, she contends Mary's career focus flouts the eugenic notion that a woman's role is to be a wife and mother, and second, that by delaying marriage, Mary contradicts the eugenic directive of early marriage and childbearing. Although a woman's traditional role and early marriage may be colloquially associated with eugenics, they are never formally adopted by ASHA nor are they universally (or even often) affirmed in the *Journal of Social Hygiene*. ASHA, in particular, seems to have supported professional women, as demonstrated by the frequency with which it published women's work and by the content of its articles. Wembridge, Hall, Forel, and others clearly indicate that Davis is not alone. In fact, a synthesis of the journal's early issues suggests the dictums Colwell cites are interrupted by Progressive Era reforms that, temporarily, allow feminist ideology and eugenics to complement one another. Certainly, the early eugenics movement is interested in a woman's role as wife and mother, but it sees these roles as *commensurate with* rather than opposed to her professional development. Recalling Wembridge's analysis of scientific child-rearing, she argues that the failure of the traditional model of motherhood provides the basis for her argument in favor of working women, supported by communal kitchens and nurseries. Simply giving birth to more middle-and-upper class children with healthy bodies is not ASHA's vision for uplifting the race. As Forel reminds us, "The social value of a [person] is composed of two factors; mental and bodily hereditary dispositions, and faculties acquired by education and instruction" (14). It is this two-pronged approach to human cultivation that Colwell's argument forgets. She fails to recognize that, for the early eugenicists, being a good wife and mother necessitates being a *trained* wife and mother. In fact, Wembridge asserts, "The spectacle of a mother as highly trained and as much in demand as the father

could not but have a good effect upon the children!" (194-5). If a woman's children recognize her as having social value in the public sphere, they are more likely to value her at home. ASHA is concerned less with the *quantity* and expediency of the children being produced as it is with those children's *quality* and home environment. Even though Wembridge does not give specific advice on the ideal time for a woman (or man) to marry, she does assert that a family with two incomes, supported by communal nurseries and kitchens, may have the resources to support eugenic children earlier and to support more eugenic children in the long run.

It is also via this merger between the public and private spheres that *The End of the Road* offers a solution to a key social problem that looms ominously in *Where Are My Children?* Through the "male medical and legal experts who dominate discussions of reproductive politics in the film, a discourse in which women's voices [are] noticeably absent," Stamp argues that Weber's film "calls attention to the male spheres of influence in which decisions about family life, human sexuality, and reproduction are made" (119). Poignantly cross-cutting between the two realms of activity, it asks "us to consider the relationship between public spaces like the courtroom and private spaces like the Waltons' home, between male spheres and female spheres, and between open, legal forums and more clandestine, illegal activity" (119). Although *Where Are My Children?* addresses the social problems that stem from separate spheres, it fails to allow its own female characters to step into public spaces (the courtroom) and punishes them when they step outside the home and into illicit private spaces (the abortion clinic). *The End of the Road,* on the other hand, explodes the private/public and male/female binaries by suggesting not only that women can but that they must enter the public sphere.

Contesting the Victorian notion that the home must be protected from the harsh realities of capitalism, competition, and vulgarity that characterize public spaces, *The End of the Road*—and Wembridge—demonstrate that it is only by combining the two spheres (using the lessons of one to complement the other) that we can reach our full potential.

Returning to the *End of the Road*'s final scene, my biggest point of contention with Colwell is her reading of its last sequence. Summarizing the film in two different passages, Colwell variously asserts that Mary "becomes engaged to Dr. Bell" (50) and that "Mary Lee, the film's heroine, follows one road 'upward towards the Land of perfect Love,' by . . . marrying the film's hero, Dr. Phillip Bell" (44). Despite Colwell's assertions, Mary's engagement and wedding *never occur*. Not only do these sequences not take place in film, they are never even discussed. In Davis's own summary of the film, she writes that "in the last scene overseas . . . Mary and her lover discover each other" (558). Calling Dr. Bell Mary's "lover" rather than fiancé or husband and describing their interaction as "discovering one another," it seems clear that, in Davis's mind, marriage is *not* implied. So, while Colwell takes for granted that Mary and Dr. Bell will marry once they return home, what is significant about *The End of the Road* in my view is the fact that it ends *without* a proposal. Following a fade in, Dr. Bell and Mary look off in the distance at a victory parade, signaling that the First World War has come to an end. Presumably stirred by the thought of returning to the States, Dr. Bell asks Mary: "Is there still someone back home?" She shakes her head no, motivating Dr. Bell to embrace her. As they unfold themselves from each other's arms, they are caught off-guard by how close the victory parade has come. Mary smiles and Dr. Bell salutes the marching soldiers as they pass. Employing an iris out, the victory scene falls out of the

frame and only Mary and Dr. Bell are left, his soldier's helmet and her nurse's bonnet reminding us of their professional associations and their role in the Allies' victory. This framing positions the (still single) Mary simultaneously as the embodiment of American eugenic ideals and as an early twentieth-century queer figure.

While it is implied Mary is now available for marriage and Dr. Bell is still interested, the narrative remains open. It is left up to Mary to decide whether she wants to marry Dr. Bell—or any man—and whether she wants children—or not. Certainly, the film ascribes eugenic value to the institutions of both marriage and motherhood, but it does not suggest Mary's goal in life is to become a wife and mother. Unlike Vera who sought early marriage to a wealthy man and was concerned only with her own family, Mary represents the Progressive Era's pathos of social utility by becoming a nurse and joining the war effort. The refusal to conclude Mary's narrative with a proposal or wedding sequence reinforces the message Mary delivered at her commencement: "There can be but one truly great ideal—development of oneself for the service of mankind." *The End of the Road* locates value not in the individual wife and mother, but in the woman who develops herself to serve mankind more broadly. While Mary may one day become both, the film reveals she does not *have* to be; she may be content to travel down one road or the other. It is in this way that Mary personifies the Progressive Era's feminine ideal and lays the groundwork for non-biological contributions that enrich human sociality.

Conclusion

In 1919, *The End of the Road*'s distributors hailed it "the greatest praised and most abused picture ever screened" (*Variety* 34). In many ways, these words ring true not

only of the steep censorship battle it encountered in the months after its release, but also of its legacy over the last century. *The End of the Road*, along with the other government hygiene films of the Progressive Era, have been fighting to counter their pejorative association with eugenics that has threatened them with extinction, both in our cultural memory and in our drive to preserve them as their celluloid begins to disintegrate. But despite the frequent reduction of eugenics to its negative connotations, these films illustrate that eugenics is mutually constituted by its reactionary and progressive tendencies and can never be stably limited to just one aspect of this dialectic. Through the trajectory of Mary's life, *The End of the Road*'s simultaneous commitments—to elitism, capitalism, and the objectivity of modern science, *as well as* first wave feminism, the welfare state, and social collectivism—reveal not only the complexity of its own ideological positioning, but also the eugenic vicissitudes of our archival commitments to restore and canonize certain visions of silent film heritage. By calling attention to these often overlooked aspects of the dialectic of eugenics, we can better understand the historical legacy which resulted in the government's Progressive Era social hygiene films. Together, these films herald a common mission: to cultivate the educational and hereditary potential of human beings, particularly women, to engineer a better humanity. In many ways, the Progressive Era vision of the scientifically-minded woman and the commitment to social service have fallen by the wayside in more contemporary times. With the proliferation of new genetic technologies, however, the eugenic legacy our ancestors left behind is poised for reinvigoration. In the years to come, we will be faced with myriad decisions about how we, as a nation, can enrich our heritage for the next generation—and what role advances in human genetics will play in this social, economic,

and political evolution. Perhaps it will be through reviving the spirit behind eugenic cinema's feminist figures, like Mary Lee and Mrs. Elbridge, that we can realize a more radical feminism than that currently offered by proponents of preventative medicine and genetic engineering. By revisiting the ideology, literature, and cinema of the Progressive Era, perhaps we can remember, re-create, or re-imagine ways of inhabiting female bodies and managing our genetic and cultural reservoirs that will lead us not toward conformity and authoritarianism, but to a new vista of variation and choice.

CHAPTER TWO:

NERVOUSNESS IS THE SERVANT OF THE INTELLECT: SEXUAL INVERSION, AESTHETICS AND *FIT TO WIN*

Medicine is the most closely linked to the whole of culture, every transformation in medical conceptions being conditioned by transformations in the ideas of the epoch.
— Henry Sigerist

If there were a perfect, finished finality, a complete system of relations of organic agreement, the very concept of finality would have no meaning as a concept, as a plan or model for thinking about life.
— Georges Canguilhem

What has Eugenics, then, to say to the abnormal person? Surely this: Come help us to solve this vital question of the improvement of the race.
— Edith Lees Ellis

As the celluloid begins to tick, *Personal Hygiene for Young Men* (1922)[38] offers up a moving picture of a shirtless, well-muscled young man as he performs biceps curls for the camera. After one full repetition from the front, the film cuts to capture him continuing his exercise from behind, his latissimus dorsi and trapezius muscles glistening in the sunlight. As if this visual were not powerful enough, the intertitle informs us that "everyone admires muscular strength" and training the body facilitates not only athletic ability but also "alertness, endurance, [and] courage." Following the image of the young athlete are that of two former presidents: Theodore Roosevelt, confidently wielding his "big stick," and Abraham Lincoln, elegant and poised, in a formal portrait. Touting them

[38] Several short films including the surviving *Personal Hygiene for Young Men*, *Personal Hygiene for Young Women*, and *Female Reel: Naked Truth* are all part of *The Science for Life* series, produced by the U.S. Department of Public Health in 1922. These films, each designed to be shown to a single-sex audience, use much of the same footage, but tailor the information they present to reflect what they perceive are the needs of their target audience based primarily on age and gender. These films, still on the original celluloid, are housed at the Library of Congress in Washington, D.C., where I travelled to view them as part of a CSCL Summer Dissertation Research Grant in May 2014.

together as the epitome of masculine perfection, the short film instructs us to follow their example by cultivating a combination of their best attributes. The athlete is the Progressive Era Adonis: the physical manifestation of masculine beauty. "Honest Abe" epitomizes the American commitment to morality, fairness, and humanitarianism, while "Teddy" Roosevelt stands tall as the modern, scientific engineer. With the erection of the Panama Canal, Roosevelt was no longer just the rugged cowboy or horseman of his youth, but a logical thinker, structural developer, and political innovator. The rhetoric of his "square deal"—resource conservation, consumer protection, and the control of corporations—figures prominently in the film as it instructs its audience: "The sex impulse is like a fiery horse. Uncontrolled, it may be destructive and dangerous but, if controlled, it makes possible creative effort in art and music and all the finer experiences in life." To waste this impulse through premarital sex or masturbation would only "hinder a boy's progress toward vigorous manhood." No sooner do the words "vigorous manhood" flash across the screen than the film cuts to reveal another youth, clad only in a tank top and shorts, winding up a fast ball. The baseball flying through the air triggers a montage of homosocial scenes: a men's decathlon, a group rock climbing expedition, and the taming of a wild horse. Guiding the men's sexual impulses away from "loose women" and prostitution and towards male bonding and athletic activity, the film shows no provocative images of women, only incessant footage of scantily clad men exercising together. In fact, the only woman in the film appears for barely six seconds, a personification of the modest wife and mother who will bear the children of the next generation. Linking together the beautiful youth, Honest Abe, and Roosevelt the engineer, *Personal Hygiene for Young Men* puts forth a clear definition of Progressive

Era fitness. The hero is not a ladies' man, a big talker, or a smooth operator; he is a visually beautiful athlete (and aesthete) who builds his strength and stamina through affectionate competition with his fellow men and conserves his sexual energy for "creative effort in art and music and all the finer experiences in life." Written and directed under the supervision of the Surgeon General of the U.S. Public Health Service, the ten-minute film suggests these "finer experiences in life" are a combination of aesthetic achievement, principled morality, and scientific rationality. By embodying all three and transmitting them to the next generation, *Personal Hygiene for Young Men* asserts that we can engineer the next great phase of cultural achievement and human evolution.

Much like our scientifically educated and socially useful—but unmarried—protagonist Mary in *The End of the Road*, the heroic, homosocial bachelors in this filmic archive present a strikingly different picture of Progressive Era fitness than a contemporary viewer might anticipate. Aware in the twenty-first century of the long history of programmatic homosexual discrimination that plagued the United States military for nearly a century and continues to loom informally, the affectionate, homosocial worlds of *Personal Hygiene for Young Men*, *Fit to Fight*,[39] and *Fit to Win* seem so far removed. In fact, their emphasis on male camaraderie seems almost antithetical to the kind of heterosexual, reproductive imperative one might expect to find in an early twentieth-century social hygiene film. And yet, at the center of each film we

[39] There is no surviving copy of *Fit to Fight*. Its content can only be inferred from the sections which are also used in *Fit to Win*, script records in The National Archives, advertisements in *Exhibitors Herald*, and contemporaneous film reviews in *Motion Picture News*, *Screenland*, and *The Film Daily*.

find young men and women living away from home, segregated into single-sex environments, with unstructured leisure time—precisely the enabling conditions, produced here by war as well as by capitalism, which John D'Emilio famously recognized as instrumental to the development of homosexuality as an identity construct in the late nineteenth and early twentieth centuries. The barracks, athletic facilities, and weekends off base in *Fit to Win* further mirror the dormitories, urban centers, and homosocial subcultures around which D'Emilio's argument revolves in "Capitalism and Gay Identity."[40]

Alongside the economic transition to capitalism came a commensurate shift in modern thinking about health and disease. Foucault's well-known analysis in *The History of Sexuality* details how the rising importance of the medical and psychiatric professions, combined with the new practice of medicalizing social deviance, gradually constructed homosexuality as a medical condition. Once a disease or "mental disorder" can be identified and diagnosed, its origins must be explained and its symptoms treated. The turn of the twentieth century thus saw a plethora of medical literature on homosexuality including several articles in *The American Journal of the Medical Sciences* and international publications such as Krafft-Ebing's *Psychopathia Sexualis* (1886),

[40] In "Capitalism and Gay Identity," D'Emilio argues that a historical shift began in the last decades of the nineteenth century wherein the relations of capitalism, particularly the free labor system, drew large numbers of men and women to live and work in the bustling cities. Away from their families which once served as economic centers, they had both the opportunity and the disposable income to spend their leisure time participating in single-sex subcultures. For those who had emotional and erotic attractions to members of their own sex, this economic, social, and geographical shift allowed them to organize their social lives around their same-sex attractions. Whereas homosexuality had once been thought of as a behavior that could be practiced by anyone, it now emerged as a constitutive identity category that "affected the consciousness of the women and men who experienced homosexual desire, so that they came to define themselves through their erotic life" (13). By the early twentieth century, one no longer simply engaged in homosexual behavior; one was homosexual.

Havelock Ellis's *Sexual Inversion* (1896), Sigmund Freud's *Three Essays on the Theory of Sexuality* (1905), and Auguste Forel's *The Sexual Question* (1908). Replacing or at least tempering their fervent religious faith with a belief in medical science, progressive reformers sought and found answers for social behavior in a person's genetic makeup and heredity.

Given the increasing pathologization of homosexuality, described by Foucault as the "specification of perversions," one would expect early twentieth-century eugenicists to have had a particular interest in selecting against the reproduction of homosexuals. While there certainly are instances in the U.S. of homosexuals being admitted to asylums and subjected to forced sterilization alongside the promiscuous, the poor, the non-white, the feebleminded, and the handicapped, homosexuality appears only rarely in contemporaneous eugenic literature. In fact, during the 1910s and 1920s, neither of the two most prominent American eugenics journals—*The Journal of Social Hygiene* and *Eugenics: A Journal of Race Betterment*—make any mention of homosexuality, its incompatibility with eugenic science, or the need for its eradication from the human gene pool. Even more striking is homosexuality's absence from eugenic cinema. Even as homosexuality was increasingly making its way into medicine, literature, and popular consciousness during the early twentieth century, it was not treated in any of the twenty-odd eugenics and social hygiene films preserved in The National Archives, the Library of Congress, The University of Michigan Historical Health Film Collection, or the private holdings of the John E. Allen Estate. Since what is absent from the screen is sometimes even more significant than what is present, this elicited the defining research questions that will shape the trajectory of this chapter: Why is homosexuality absent from early

eugenic cinema and how can this absence be explained, particularly in light of the shift that occurred during the 1930s and 1940s, when homosexuals became targeted by the eugenics movement, not only in Nazi Germany but also in the U.S. and other Western countries? Since homosexuality was understood as a genetic predisposition rather than a voluntary behavior, why was it *not* widely considered a significant hereditary threat by progressive reformers?

In researching these questions, I made a curious discovery right at the outset. Many prominent members of the eugenics movement considered themselves to be either homosexual or bisexual, had engaged in same-sex relationships at some point during their lives, or frequently socialized with homosexuals through their participation in the intelligentsia and art/literature communities. In fact, perhaps the best known member of the British eugenics movement, economist and British Eugenics Society President John Maynard Keynes, had same-sex relationships throughout his adult life, as did eugenics writer/lecturer Edith Ellis and novelist Samuel Beckett. Still other eugenicists, including Katherine Bement Davis who wrote *The End of the Road* and Harry J. Haiselden who wrote *The Black Stork*, remained life-long spinsters or bachelors whose personal lives were frequently the subject of homosexual speculation. In fact, Davis subsequently published a survey titled *Factors in the Sex Life of Twenty-Two Hundred Women*,[41] of which approximately ninety pages are dedicated to women's same-sex desire and

[41] Davis' study on women's sexuality was funded by the Rockefeller Foundation, the very same foundation that funded the production of *The End of the Road*. Unlike earlier sexuality research which sought to examine sexually "deviant" persons like those who were incarcerated or who sought psychiatric treatment, Davis found her survey participants through country club registries. Her interest lay in studying the average middle-class woman. In the late 1940s, Alfred Kinsey credited Davis' study with providing some of the methodological foundation for his studies "Sexual Behavior in the Human Male" (1948) and "Sexual Behavior in the Human Female" (1953).

erotitism. While the presence of homosexuals among the eugenicists (including among this archive's screenwriters) is not itself an explanation, it is a striking anecdote and works against the presumption that homosexuality must have been excluded because it was "unspeakable." And, as a starting point, it *does* tell us that unlike feeblemindedness, physical handicaps, or a history of criminality, involvement in a same-sex relationship did not preclude one from being a respected member of the eugenics community or the "superior race." It also tells us where to look for deeper answers: in the publications of these seemingly unlikely eugenicists and in those of their frequent collaborators. While mainstream psychiatry was largely intolerant of same-sex eroticism, the eugenicsts' publications tell a different story. It is this obscure corpus of literature that will provide the foundation for my reconstruction of the early eugenicists' theory of sexual development.

As my research will demonstrate, a primary reason why homosexuality was not selected against by the Progressive Era eugenics movement lies in its theory of the hereditary sexual instinct, which arose from a particular constellation of early twentieth-century scientific, cultural, and political ideologies as well as structural economic necessities. The early eugenicists believed that an abnormal sexual instinct came from a hereditary "nervous" disposition which was positively correlated with high intelligence and creativity. To understand how this theory developed alongside other, competing philosophies of sexuality, in this chapter, I will juxtapose it with both Freud's theory of psychosexual development and Foucault's deployment of sexuality, developed through a careful analysis of Victorian through Progressive Era psychiatric literature. While it would be spurious to assume that the early eugenics movement ascribed to a single,

uniform ideology, in order to offer a representative example, I will weave together an overlapping patchwork of ideas from various contributors to the *Journal of Social Hygiene* and *Eugenics: A Journal of Race Betterment* as well as prominent sexologists and writers including Havelock Ellis and his wife, Edith Ellis, the latter of whom embarked on a wildly popular American lecture tour in 1914, delivering speeches on eugenics, sexuality, and parenthood. In this mélange of early eugenic philosophy, the socially useful spinster, the homosocial hero, and the true sexual invert are far removed from the sexually threatening bachelor who loomed in the margins of nineteenth-century literature, the developmentally arrested patient in Freud, and the "sexually perverse" psychiatric subject who formed the basis for Foucault's historical investigation. They are, instead, in the words of Edith Ellis, the "discordant notes" who hold, within themselves, the creative and intellectual potential to move society one step closer to human perfection.

Treating the Progressive Era eugenicists' philosophy of sexuality as a theoretical discourse in its own right, this chapter will illuminate the fissures in both Freud's theory of psychosexual development and Foucault's deployment of sexuality which, he argues, had become dominant by the turn of the twentieth century. Certainly, Freud's and Foucault's examinations of the state of the so-called "abnormal" person from the mid-nineteenth through the early twentieth century accurately describe the normative situation. What the early eugenicists offer, however, is a strikingly different way of interpreting abnormality which flourished during a specific ideological and temporal window. Whereas Freud and Foucault take for granted that early mainstream psychiatry sought to reform or protect society from the threat of the sexual invert, the eugenicists

recognize that the sexually abnormal person—*as abnormal*—possesses a particular brand of untapped social utility which, properly harnessed, could facilitate cultural progress.

The Progressive Era eugenicists' project for making the sexual invert socially and economically productive guarded against the intrinsic threat of homosexual asociality while, at the same time, supplying the capitalist economic system with additional human labor power. Rather than using techniques of homogenization or normalization to compel conformity or extract uniform labor power from its sexually abnormal citizens, the eugenicists realized that the sexual invert offered something unique. Recognizing that capital is predicated on a multitude of differences it can exploit, the eugenicists tapped into the particular intellectual and creative resources of its sexually abnormal citizens in order to move the nation forward culturally, economically, and genetically. In fact, the emergence of the socially useful invert at the turn of the twentieth century helped secure the survival of the capitalist economic system when its existence was in jeopardy due to the rise of socialism abroad, the uprising of U.S. workers, and the nation's entrance into the First World War.

While, in the previous chapter, Mary, *The End of the Road*'s scientifically educated and socially useful heroine, serves as a filmic embodiment of the eugenics movement's vision of female perfection, in this chapter, it is the filmic absence of the sexual invert that is just as telling. Despite the archive's frequent admonitions against masturbation, prostitution, and infidelity, there is no mention of sexual inversion or homosexual behavior. On the contrary, as we see in *Personal Hygiene for Young Men*, homosocial activity among men—group exercise, physical affection, and male social bonding—are proffered as clean alternatives for the release of pent-up sexual tension.

This message is employed to dramatic effect in *Fit to Win*, the wartime government's first and only social hygiene melodrama designed exclusively for civilian men. Together, *Fit to Win's* filmic aesthetic and narrative—*and that which they conceal*—deliver on 35mm celluloid the Progressive Era eugenicists' vision for human evolution.

Eugenically *Fit to Win*: Billy Hale as the Sexually Abnormal Ideal

Through photographic and video footage of several American heroes, from Presidents Theodore Roosevelt and Abraham Lincoln to fictional characters like Dr. Bell and Billy Hale,[42] the films in this archive reveal a preoccupation with both physical and mental fitness. Not only are the early eugenicists concerned with a strong body, like that of the well-muscled athlete performing for the camera in *The Science of Life* film series, but also a sound mind, a virtuous character, and a commitment to public service. As *Personal Hygiene for Young Men* instructs, the mental qualities of "determination," "courage," and "self-control" are "even more important" than "large muscles." In these films, including *Fit to Fight, Fit to Win, The End of the Road, Personal Hygiene for Young Men, Personal Hygiene for Young Women,* and *Examination of Enlisted Men by the Neuro-Psychiatric Unit at Camp Lee* (1917), the psychiatric and behavioral conditions which preclude men and women from being fit to serve their country—either as soldiers and nurses or as prospective parents—are described as insanity, imbecility, and lasciviousness. Even when these films do decry irregular sexual behavior, they refer explicitly to "prostitution," "loose relations," and "masturbation," the dangers of which,

[42] In quite an interesting casting twist, *Fit to Win*'s virtuous hero Billy Hale is played by Raymond McKee (the actor who played the lecherous Paul in *The End of the Road*) while Joyce Fair (who played syphilis-afflicted Vera in *The End of The Road*) here plays the chaste Rosie McCabe.

Personal Hygiene for Young Men warns, are the production of "defective" offspring, the spread of "venereal disease," and the loss of "vigorous manhood." In fact, despite being hailed by *Motion Picture News* as "the first motion picture ever produced that tells the whole truth" of human sexuality (2154), *Fit to Win* never addresses homosexuality, gender inversion, or sodomy, not even in the context of venereal disease prevention or military disqualification. Given the film's silence on these issues, can we presume same-sex eroticism was not considered by the film's producers to be an "enemy" in "the big battle to make the world safe and clean for posterity" (*Exhibitors Herald* 14)? While there may be no definitive answer to this question, what *Fit to Win* does offer, as a product of the CTCA's Section on Motion Pictures, is the definition of eugenic fitness espoused by the U.S. government as it calls upon its viewers to remain fit for duty, whether that duty be in the factories, on the farm, or on the front lines. Centered on a group of five young army recruits during their first year of enlistment, *Fit to Win* uses the men's divergent paths to illustrate the successes and follies that accompany their choices with respect to women, alcohol, and other temptations endemic not only to military but also civilian life.

Serving as both writer and director, Lt. Edward H. Griffith's authorial voice stands in for that of the U.S. government as he combines didactic lecture with narrative dramatization to present a modern image of the fit American hero. In perhaps the most striking base camp training scene, the Company Commander stands to deliver a sexual health lecture to his newly enlisted men, attentively seated around him in a semi-circle. The low angle of the shot and the presence of the side of the sergeant's head in the frame allow the viewer to feel as though he, too, is seated in the circle of enlisted men. While

the Commander begins to hand out literature on venereal disease, the camera cuts in to a close-up of the pamphlets. Resting on a lap clad in army fatigues are several different leaflets, the last of which is entitled "Keeping Fit to Fight." As an anonymous pair of hands thumbs through its pages, the viewer is invited to superimpose his own visage on that of the anonymous soldier. Imagining himself seated in that semi-circle, the viewer can almost hear the Commander's words as he continues his lecture, warning about the dangers of heterosexual relations, from seemingly innocuous activities like kissing to the more iniquitous affairs of casual sex and prostitution. Contradicting the old wives' tale that men's health necessitates sexual relief, the Commander attests, via intertitle, that "it won't hurt your health a damned bit to stay away from the prostitutes, and take it from me, it's the only decent and dead-sure way to beat the little bugs that cause clap and syphilis." Although the Commander does give the men information on prophylactic treatment, he warns that it "may save you if you're weak enough to fall for a prostitute," but there are no guarantees. Shaking his finger sternly, the Commander continues: "The wise guy isn't the 'rounder any more. To be seen with a prostitute is a sign that you're a boob and an easy mark." Masculinity, *Fit to Win* asserts, is defined not by sexual prowess but by sexual restraint. Conversely, a lack of sexual restraint is indicative of one's ignorance and exploitability.

This battle of ideology plays out physically through a boxing match between the film's restrained hero, Billy Hale, and his fellow soldier, Kid McCarthy, a former boxing star and womanizer. The Kid calls Billy a "coward" for not going to prostitutes, and the two agree to settle the score through a round in the ring. In place of (hetero)sexual release, the film thus offers full-contact physical exercise between men as a productive

way of expelling pent up sexual energy. In contrast to the dangerous activities of kissing or having sex with women, roughhousing with the guys is portrayed as healthy, safe, and character building. In the ring, Billy bests the former boxing champion in front of a room full of cheering recruits and, as his prize, he gets The Kid to agree to "stay away from the hookers [because] they're boosting the Kaiser's game." To employ a metaphor from *Personal Hygiene for Young Men*, Billy has successfully tamed his "fiery horse" and, as a result, he can beat a trained fighter using nothing but sheer mental focus and accrued energy. Once again, "self-control" and "alertness" matter more than "large muscles." Through The Kid, we also see that the reverse holds true: a man's inability to control his sex drive leads to a deficiency in both physical fitness (he's a weaker physical competitor; he's susceptible to venereal disease) and mental fitness (he's a "boob," an "easy mark," and a pawn in "the Kaiser's game"). The association among sexual control, mental prowess, and courage continues throughout *Fit to Win* as Billy, the continent war hero, is continually contrasted with his fellow recruits who prove themselves to be "easy marks." This is particularly evident towards the end of the film when two of Billy's comrades, Hank Simpson and Jack Garvin, contract syphilis and are taken off of active duty during their period of recuperation. Reading the newspaper together, they come across the announcement of Billy's promotion to captain and his commendation for bravery. In a moment of stop-trick animation reminiscent of Georges Méliès, Hank imagines officer's stripes on his shirt cuffs and a medal of honor on his chest. Then, just as quickly as they appeared, they dissolve back into the fabric, leaving his uniform bare and his face sunken in disappointment. Had he been able to resist the urge to kiss the beautiful woman he met at the train station, perhaps he, like Billy, would be a U.S. war

hero. The dichotomy is clear: the amorous, sentimental man is an ignorant "boob" who is unfit to serve his country, while the (hetero)sexually restrained yet homosocially active man who follows the protocols of eugenic science is a national figure of veneration.

While *Fit to Win* reductively locates female prostitutes as the primary source of venereal disease and uses sexist language in its depiction of these "immoral women," it is nonetheless progressive in other ways. Rather than focusing on arresting prostitutes or moving brothels away from base camps (strategies often employed by both military commanders and civilian vice reformers to make prostitutes less available to the enlisted men),[43] *Fit to Win* calls upon its male viewers to change their *own* behavior and take responsibility for their sexual health. By introducing negative stereotypes for the man who patronizes prostitutes—the "easy mark," the "boob," the man who can't control himself—*Fit to Win* takes a small, first step towards greater gender equality. No longer is all of the blame placed on the woman; it is now shared (although not necessarily equally) by both parties. Moreover, not only are *Fit to Win*'s men asked to refrain from having sex with prostitutes, but from engaging in (hetero)sexual activity altogether. Through the melodramatic misadventures of Chick, Hank, Jack, and The Kid, *Fit to Win* provides a resounding answer to the question *Personal Hygiene for Young Men* poses in its final intertitle: "Have you the right to demand honor and purity of the girl you ask in marriage unless You are going to offer HER a clean life?" Along with the other films in this

[43] In his article "Next Steps," published in *The Journal of Social Hygiene*, Major Bascom Johnson supports the popular campaign "being waged in America against commercialized prostitution near military camps. Its aim is to protect military forces from prostitutes and other carriers of venereal diseases in order to keep them fit to fight" (9).

archive, *Fit to Win* advocates the "single standard" for men and women by calling attention to the hypocrisy and follies of the old, double standard.

While *Fit to Win* is silent on homosexuality, as the boxing scene between Billy and The Kid illustrates, the primary way in which the film compels its viewers to practice (hetero)sexual restraint is by appealing to their homosocial bond with one another. Referring to themselves as "sworn pals" and giving one another frequent pats on the back and hooks to the cheek, the men work to keep each other in check. They do this not only by substituting sexual activity with prostitutes for physical exercise with one another, but also by creating a culture of emulation and camaraderie. With Billy touted as the ideal soldier, the other men are encouraged to be more like him by lining up to take his boxing lessons and listening to his moral teachings. While one of the men, Kid McCarthy, does have a sweetheart back home who figures prominently in the narrative, the others do not. Billy's primary affective relationships in the film are with his fellow soldiers: first as their friendly model recruit, and then, following his promotion to Captain, as their charismatic new instructor. In fact, the primary heterosexual relationship in the film—between The Kid and his sweetheart Rosie—is mediated through Billy. Torn between two women, the virtuous Rosie McCabe and the fast-drinking Cherry Brown, The Kid goes to Billy for advice and is counseled into choosing Rosie. Shortly thereafter, The Kid dies in battle and Billy pays a visit to Rosie to deliver his personal effects. Taking a seat next to Rosie on her sofa, Billy undoes a middle button on his military jacket and pulls out the small, cloth covered bundle that has been resting against his breast. Unwrapping it with great care, he reveals The Kid's medal of honor and photo sleeve (containing his soldier's portrait, opposite a photo of Rosie). It is only with this gesture that we learn

Billy has been keeping The Kid's photograph and medal against *his own* heart since his friend's death. Billy gently hands the photobook to Rosie and, in a moment of poignant contrast, we see the two mourners side by side: Rosie, stretching her arms out in front of her, holds the photo sleeve as far away from her body as possible while Billy, still clutching the medal of honor, holds it up over his breast pocket, the very location where it once rested on The Kid's chest. After a sorrowful pause, Billy relinquishes the medal and pins it on Rosie's chest. Then, casting his eyes downwards, he clutches the piece of cloth that, only a moment ago, held The Kid's possessions. Interrupting Billy's silent contemplation, Rosie tells him: "I didn't need this to tell me he was a hero." And yet, presumably, Rosie is blissfully unaware of the love triangle she was in, her fiancé's drinking problem, and the myriad life-changing experiences he had in the military, all facilitated by his friendship with Billy. Privy only to the intimate details of the relationship between The Kid and Billy, and not The Kid and Rosie, the viewer cannot help but feel Billy's loss more than Rosie's.

As the film cuts from Rosie's apartment to a men's clothing store, the incongruence between *Fit to Win*'s didactic instructions and its subtler, homosocial narrative is even more apparent. The war is over and it is now time for Billy to return to civilian life. Declaring shopping an "indoor sport exceedingly popular these days with young gentlemen in uniform," *Fit to Win* follows Billy as he tries on civilian clothing, grinning into the camera as if it were a mirror and emphasizing his derriere. Then, in a move reminiscent of Charlie Chaplin's Little Tramp, Billy haplessly (and repeatedly) bumps chests with the shop assistant who is trying to fit him for a jacket; one last act of homosocial physical contact, presumably endemic to the "sport" of shopping. Almost as

an afterthought, *Fit to Win* interrupts this playful scene to instruct Billy and the identifying viewer: "You made the world safe for democracy. Now you must make it safe for posterity. Your government expects you to give your children a clean, untainted heritage." This penultimate message contrasts sharply not only with the state of the men's lives, but also with the last hour and a half of footage, which has focused exclusively on teaching the men the virtues of sexual restraint. Thanks to Billy's social hygiene lectures and boxing lessons, the other recruits are stills bachelors and, up until this point, their most significant affective relationships have been with each other. The film has taught them to steer clear of prostitutes, avoid venereal disease, and exercise male camaraderie, but it has taught them nothing about heterosexual relationships or parenthood. Like their female counterpart Mary in *The End of the Road*, it is unclear marriage and parenthood await each of *Fit to Win's soldiers* in the years to come. Their status as eugenic heroes is thus secured through their social service, *before* they ever make a genetic contribution to human posterity.

The Bachelor Tells the Story

Fit to Win's Billy Hale is a very different kind of bachelor than the ones we have grown accustomed to meeting in the fictional works of Henry James, Fyodor Dostoyevsky, and Herman Melville. While the bachelor loomed in much of nineteenth-century literature and pop culture as a threatening figure signaling both procreative and economic unproductivity, the eugenics movement at the dawn of the Progressive Era reimagines and recuperates the bachelor as a paragon of a kind of intangible productivity: intellectual creativity, social insight, and astute authorship. Examining early America's fear of the sexually suspect bachelor in *Idle Threats*, Andrew Knighton recalls that the

late nineteenth-century bachelor represented "the transgressive triple threat of masturbation, whoremongering, and the nameless horror—homosexual sex . . . [which] coexist with another vague terror, that produced by the prospect of idleness and economic unproductivity itself. The bachelor's indifference toward sexual productivity was represented as mirroring a lifestyle preoccupied not with production, but rather with the 'feminine' traits of consumption and expenditure" (20). The beginnings of a counter-discourse to this dominant conception of the bachelor is already at work, however, in Bryce Traister's analysis of the early nineteenth-century bachelor-author in "The Wandering Bachelor: Irving, Masculinity, and Authorship." Rather than appetitive, consuming, and idle, this modern bachelor—represented, among others, by Washington Irving—appears as productive, not heterosexually, but creatively, through his writing, artistic contribution, and attribution of queer value to everything he engineers. Unencumbered by family life and harnessing his sexual impulses into his creative pursuits, the bachelor has the potential to be culturally *hyper*-productive. It is this perception of the bachelor-author which leads Traister to assert that "the origins of male authorship lie in the vagrancy of the solitary male" (125) and that "the bachelor's sexual renunciation produces the imaginative spark of literature" (127). It is precisely by *not* engaging in heterosexual sex that the bachelor's imaginative sexual impulses can be directed to the pursuit of literature, philosophy, entrepreneurship, and social service.[44] This is the kind of bachelor we see resurrected and revitalized in *Fit to Win*, both in the

[44] Certainly, the conflation here between authorship and masculinity is problematic, as has been written about extensively in feminist theory by Luce Irigaray, Adrienne Rich, and Julia Kristeva, among others. For the purposes of my project, however, I am confining my critique to the specific relationship between the bachelor and creative production, as it pertains to the theorization of the sexual invert by the Progressive Era eugenics movement.

heroic character of Billy Hale and in the behind-the-scenes authorship of the film itself, an artistic work written and directed by two bachelors.[45] Certainly, there is some slippage here between the bachelor as literary or filmic figure and the bachelor as real-life author; we are dealing with both a form of representation and the actual men who are producing these representations. In fact, in Traister, we see *three* iterations of the bachelor: the literary characters Irving creates, Irving the man, and retrospectively, Washington Irving the prominent nineteenth-century figure. To further complicate our analysis, both Irving and Griffith are bachelor-authors who seem to have created characters largely in their own image. The young Captain Hale bears a remarkable biographical and physical likeness to the twenty-eight-year-old bachelor Lieutenant who himself served as an officer in World War I.

An examination of the genealogical development of the American bachelor from the nineteenth through the early twentieth century reveals the shifting values of the American landscape around heterosexual domesticity and male homosociality, biological and intellectual productivity, the welfare state, and the capitalist profit motive. In Traister's analysis of Irving, the bachelor's position outside of mainstream, family life gives him a unique and distanced vantage point from which to observe the world around him and intervene in its reproduction. In fact, he becomes "a trustworthy—because detached—producer of American narrative" (126). But rather than offering an alternative to domestic normativity, Traister asserts, the bachelor, both as figure and as author, is "a social and sexual other who helps to advance a normalizing cultural project like

[45] Lt. Edward H. Griffith and Lewis Milestone were each single army men at the time they wrote *Fit to Win*, although both did later marry.

marriage" (120). On the surface, it *appears* this is the project both Billy Hale and the real-life eugenic leaders take on. From their partially detached position as bachelors, spinsters, or childless couples, they have the keen ability to assess the current state of cultural and evolutionary progress and channel their excess creative energy into projects—scientific literature, novels, films, and lecture series—that enforce the largely normative cultural objective of eugenic marriage, birth, and childrearing. As Washington Irving writes in an 1821 letter to his life-long friend and companion Henry Brevoort, "If I can do any good in this world it is with my pen" (111). This sentiment likely rang true for many eugenic leaders, like Keynes and the Ellises, who never bore children of their own but who became "spiritual parents," contributing intellectually and culturally to the advancement of the human race. In the filmic archive, Billy Hale is, in many ways, the perfect embodiment of this kind of idyllic modern bachelor, or, in Traister's words, "the solitary male [who] could be recuperated as exemplary rather than deviant" (123). Except, it is here that, perhaps, Traister's own language belies his argument. By becoming "exemplary" due to his position *outside* of domestic normativity, the bachelor inherently contests the validity of gender, sexual, and cultural norms. Even though this contradiction is present in the figure of the nineteenth-century bachelor, it is not until the Progressive Era that the bachelor is openly venerated for his achievements and given a viable place within the social fabric of American life. In fact, while the Progressive Era bachelor embodies the "imaginative spark" Traister identifies, he is no longer a "solitary male" relegated to the fringes of society. He is, instead, the beating heart of a homosocial male network and a eugenic, masculine ideal that others are encouraged to emulate. Through securing the eugenic mission of those who will become spouses and parents, he

provides a viable queer alternative to domestic life: a eugenic route that is "exemplary" (Galtonian) rather than simply normative (Durkheimian). The bachelor's social and economic purpose is loftier than that of heterosexual marriage and procreation. *Fit to Win*'s continent army captain and role model, Billy Hale, fulfills a greater social role: he is the spiritual parent to his entire unit rather than just the physical parent to a handful of biological children. And, extra-diegetically, Lt. Edward H. Griffith and Lewis Milestone, the two bachelor screenwriters behind *Fit to Win*, become the spiritual parents of its entire viewership.

The Theorization of Abnormal Sexuality: Freud, Foucault, and the Early Eugenicists

The filmic example of Billy Hale, the homosocial bachelor, combined with the theoretical treatises of several prominent eugenic writers, including Havelock Ellis, demonstrates a fundamental flaw in our contemporary thinking about how sexual abnormality was viewed within eugenic circles at the turn of the twentieth century. In an effort to explain the tolerance for homoeroticism among several prominent persons (including many eugenicists) from the late nineteenth through the early twentieth century, historians and queer theorists including William T. Gibson, Jeffrey Weeks, and Paul Hegarty have argued that when same-sex sexuality was viewed as "homosexual behavior" it did not necessarily taint the individual because the problem was the behavior, not the person's identity. People displaying same-sex eroticism were often treated with lenience, though their behavior was subject to sanction or correction, since there was a perceived separation between sexual object choice and genetic propensity. Prior to the emergence of a self-conscious gay identity at the turn of the twentieth

century, John D'Emilio argues that "in Western Europe and in the portions of North America populated by European settlers, men and women engaged in what we would describe as homosexual behavior, but neither they nor the society in which they lived defined persons as essentially different in kind from the majority because of their sexual expression" (*Sexual Politics* 4). While this does "not apply approval of same-sex eroticism," D'Emilio writes, "their behavior was interpreted as a discrete transgression, a misdeed comparable to other sins and crimes such as adultery, blasphemy, and assault" (4). Certainly, this explanation accounts for the attitudes of many modern psychiatrists, clergy, and community leaders, but Havelock Ellis's theorization, as well as that of other Progressive Era eugenicists, runs counter to this dominant narrative. Although contemporaneous psychiatry, including the Freudian psychoanalytic tradition, still bore traces of a behavioral model, Progressive Era eugenicists promoted a genetic model in which a propensity for sexual inversion was influenced by one's hereditary line.

The primacy of heredity in Havelock Ellis's *Sexual Inversion*, Auguste Forel's *The Sexual Question*, and Edith Ellis's *New Horizon in Love and Life* necessitates a new hypothesis to account for the Progressive Era eugenicists' tolerance for sexual inversion among the fit. I propose that the reason sexual inversion was not selected against is because it was believed to be the consequence of a nervous disposition, and a nervous disposition was thought to be positively correlated with intelligence. In the early issues of *Eugenics: A Journal of Race Betterment*, virtually no topic receives more coverage than heredity's role in intellectual and creative development and the obligation to produce a greater number of geniuses in the next generation. Publishing articles such as "The Reproduction Rate of Genius: Will Birth Control Diminish It?," "The Production of

Gifted Children from a Parental Point of View," and "The Breeding of the Mental Endowments of Genius,"[46] the journal asserts that "heredity and not environmental factors constitutes the fundamental cause for the achievements of great talent" (Kretschmer 74). Its position firmly established at the outset, the journal's contributors, including Hannah M. Stone, go on to offer a wide range of eugenic methods "for the production of a superior race and a higher intellectual status" (22). While Stone discusses only the benefits of genius, Kretschmer tackles the popular association between nervousness and intelligence by asking us to revisit the "old familiar questions, leading us back to the problem: 'Genius and insanity'" which, he argues, can be found in some family lines (80). Still, intelligence's frequent co-morbidity with "nervousness" is not enough for Kretschmer to temper his vigorous enthusiasm for the "breeding and development of great talent" (74). In fact, in his subsequent book *The Psychology of Men of Genius*, Kretschmer acknowledges that "many geniuses have been unmarried or childless; some have been weak in the sexual impulse, or perverted," but this does not diminish their achievements (14). It is this privileged role of the genius in eugenic discourse that allows intellectually gifted bachelors and/or sexual inverts to be actively selected *for*, rather than *against*. In fact, many of the eugenicists themselves, including Edith Ellis, claim to have possessed a nervous disposition, often including some degree of inversion. Due to their deeply held commitment to scientific rationality over sentimentality, they championed intellectual, artistic, literary, and philosophical abilities over what they considered antiquated and superstitious moralism. They condemned

[46] This article was first published in *Psychiatric Quarterly* in March 1930.

outright that Victorian "prudery and pharisaical self-righteousness" which interfered with educating people about sex, anatomy, contraception, and sexual variation, emphasizing that popular objections were moralistic rather than scientific in nature (Stokes 218). In fact, in eugenicist Magnus Hirschfeld's presidential address at the 1929 International Conference on Sex Reform, he declares that "morality should not be dependent on accidents of time and place nor should it be based on supernatural considerations. It should be based on what nature teaches; and the mouthpiece of nature is science. A sexual ethics based on science is the only sound system of ethics" (xiv), and while there is no scientific consensus yet on "whether sexual abnormalities should be regarded as pathological or as biological variations . . . I believe we should extend our idea of the range of biological variations and limit the conception of pathological cases," for "even sexual minorities have rights" (xiii). This fervor for science over sentimentality allowed sexual inversion to escape becoming a genetic taint even as it was thought to have a genetic or hereditary component.

The Progressive Era eugenicists' high estimation of the sexual invert's intelligence and social utility provides a surprising counter-narrative to the dominant psychiatric and cultural theorizations of sexuality, pioneered by Freud and analyzed retrospectively by Foucault. It is their accounts, more than those of any other theorists, which have come to characterize our understanding of the sexual instinct, the medicalization of sexuality, and the attendant emergence of psychiatry as the proper discipline for explaining and correcting sexual deviance in the late nineteenth and early twentieth centuries. By teasing out both the ideological divides and overlaps among Freudian psychoanalysis, Foucault's historiographic account of the deployment of

sexuality, and the early eugenicists' model of sexual ab/normality, it becomes clear how an alternative theorization—the exceptional sexual invert—was able to, briefly, co-exist alongside the mainstream pathologization of homosexuality.

Turning first to Foucault's account of the history of sexual deviance, he writes in *Abnormal: Lectures at the Collège de France 1974-1975* that the notion of the abnormal person arises in the nineteenth century "when a regular network of knowledge and power has been established that brings" together its three antecedents—the monster, the incorrigible individual, and the juvenile masturbator—and "invests them with the same system of regularities" (61). Moving away from the mental alienists' model of psychological illness as delirium, nineteenth-century psychiatry adopted an "analysis of abnormality as instinctual desire" in which the instinct is the primary element in the organization of abnormality (234). Expanding upon Georges Canguilhem's concept of biological normativity first introduced in *The Normal and the Pathological*, Foucault[47] explains that the notion of abnormality developed not as a separate category defined by adherence to a set of pathological criteria but, rather, by a

> deviation of conduct from rules of order or conformity defined on the basis of administrative regularity, familial obligations, or political and social normativity. These deviations define conduct as a potential symptom of illness. The value of conduct as symptomatic also depends on where these deviations are situated on the axis of voluntary and involuntary. . . . Broadly speaking, conduct is healthy when there is

[47] Foucault studied under Canguilhem and wrote an introduction to *The Normal and the Pathological*, included in subsequent printings of the text.

> minimal deviation and automatism, that is to say, when it is conventional and voluntary. When deviation and automatism increase, however, and not necessarily at the same rate or to the same degree, there is illness that must be precisely defined in terms of this increasing deviation and automatism (159).

It is therefore the combined traits of deviation and automatism which come to define human abnormality and become associated in nineteenth-century psychiatry with the sexual instinct. Citing Heinrich Kaan's *Psychopathia Sexualis* as both a prominent and representative example, Foucault asserts that, for the early sexologists, the sexual instinct in particular is "susceptible to a series of abnormalities" because "it is always in danger of deviating from the norm" (279). If we concede that deviation from the norm is in fact the primary indicator of abnormality, the next question we must ask ourselves is: from where do these deviations originate? In the work of Kaan, Krafft-Ebing, Baillarger,[48] and other nineteenth-century sexologists and psychiatrists, "the agent of derivation is imagination," or what Kaan calls *phantasia* (280). "Imagination," for Kaan and his contemporaries, "prepares the way for all the sexual aberrations. Consequently, sexually abnormal individuals always come from those who used a sexually polarized imagination in onanism and masturbation when they were children" (280). Though Kaan's analysis is admittedly crude, Foucault asserts that it contains a number of points crucial to our

[48] Even as Krafft-Ebing identified the sexual drive in the nervous system and argued for the role of heredity in the development of sexual perversions, his case studies focused less on his patients' biology and more on their autobiographical histories including subjective experience, perception, imagination, and fantasies. For further reading, see: *Psychoapthia Sexualis*, 1886. For Jules Baillarger's examination of the role of the imagination in both what he considered both abnormal "psychical" and normal "psycho-sensorial" hallucinations, see: *Des hallucinations, des causes qui les produisent et des maladies caractérisent*, 1842.

understanding of the problematization of sexuality in late nineteenth- and early twentieth-century psychiatry:

> The first is that it is natural for the instinct to be abnormal. Second, this discrepancy between the instinct's naturalness and normality, or even the intrinsic and confused link between the instinct's naturalness and abnormality, appears in a privileged and determining way at the time of childhood. The third important theme is the privileged link that exists between the sexual instinct and *phantasia* or imagination. . . . It is imagination that opens up to it the space in which it will be able to develop its abnormal nature. The effects of this uncoupling of nature and normality are revealed in the imagination, and it is on this basis that the imagination serves as the intermediary or relay of the causal and pathological effectiveness of the sexual instinct (280).

It is precisely this associative link Foucault highlights between the imagination and sexual abnormality which lays the foundation for the Progressive Era eugenicists' belief that the sexual invert (or, more broadly, the neurotic) has a privileged relationship to creativity, aesthetics, and cultural transformation. Where the eugenicists diverge from the psychiatric accounts Foucault cites is in their understanding of the relationship among imagination, development, and intelligence, which leads them to ascribe a dramatically different social use value to the abnormal individual. The abnormal person in Foucault is someone from whom "society must be defended" while, for the eugenicists, he is someone who carries within him the potential for evolutionary social progress.

In contemporaneous psychiatric literature, Foucault argues, the abnormal individual's close connection to the imagination is tethered to the practice of childhood masturbation, protracted immaturity, and psychological pathology, while in early-twentieth-century eugenic thought, it is interpreted differently. This difference is rooted in their divergent understandings of the role of imagination in cognitive and behavioral development, the relationship between imagination and intelligence, and the associative link between imagination and childhood. In the case studies Foucault examines, the abnormal person is perceived to have a child-like "lack of inhibition, a spontaneity of the lower and instinctual processes of satisfaction. Hence the importance of 'imbecility,' which is functionally and essentially linked to aberrations of behavior . . . arrested development . . . infantilism" (301). This interpretation is largely shared by Freud who considers sexual inversion "to be a variation of the sexual function produced by a certain arrest of sexual development" (Abelove 381) in which "libidinal development has suffered some disturbance" (*Certain Neurotic Mechanisms* 18). Though Freud's views on homosexuality do undergo a certain degree of metamorphosis during his lifetime—from his first account in *Three Essays* published in 1905, to *On Narcissism* (1914) and *Certain Neurotic Mechanisms in Jealousy, Paranoia, and Homosexuality* (1922), and finally, to the 1935 letter he writes to a mother seeking advice regarding her homosexual son—what is perhaps most consistent throughout is his belief that, regardless of its origin, a sexually inverted object choice indicates that the normal process of psychosexual development has been stalled or disrupted and that the individual in question has not reached mature, genital sexuality. Freud cites as evidence his observation that "Even in the most normal sexual process we may detect rudiments which, if they had developed, would have led to

the deviations described as 'perversions'" (*Three Essays* 15). In other words, many, if not all of us, harbor the potential for the sexual instinct to become "arrested" or "disrupted" and thus develop along abnormal lines, whether that results in inversion or in another form of neurosis or perversion.

While Havelock Ellis disagrees with Freud's understanding of the origin of sexual inversion, the two thinkers do agree on two fundamental points. First, they both contend that sexual inversion is the result of an inverted sexual object choice. Conflating same-sex attraction and gender identity, Freud and Havelock Ellis assert that an inverted sexual object choice is frequently accompanied by the adoption of cross-gender characteristics. This is thought to be more so the case with the "absolute invert," who takes love objects exclusively from his own sex, as opposed to the "amphigenic invert" who takes love objects of both sexes, or the "contingent invert" who only takes same-sex love objects under certain external circumstances such as same-sex dormitories, military barracks, or prisons (Freud, *Three Essays* 2-3). Second, they both classify sexual inversion among—or suggest that it frequently presents with—the "nervous disorders" or "neuroses," including hysteria, hypochondria, hyperesthesia, neurotic anxiety, neurotic fixation (now understood as obsessive-compulsive disorder) and neurasthenia (now understood as depression). As Freud writes in *Three Essays*, "the earliest assessments regarded inversion as an innate indication of nervous degeneracy. This corresponded to the fact that medical observers first came across it in persons suffering, or appearing to suffer, from nervous diseases" (4). But while Freud accepts that the inverts who seek medical treatment often co-present with neurotic disorders, or experience discomfort with their sexuality or social ostracism which leads to the development of neurosis, he does not

classify inversion *itself* as a neurosis. He contends: "this characterization of inversion involves two suppositions, which must be considered separately: that it is innate and that it is degenerate" (4). Since inverts often have "no serious deviations from the normal, . . . their efficiency is not impaired," and they are often "distinguished by specially [sic] high intellectual development and ethical culture," Freud rejects the idea that inversion is a degeneracy (5). And yet, interestingly, the reverse does not hold true for Freud. While inversion itself is not a neurosis or a degeneracy, Freud argues that "the unconscious mental life of all neurotics (without exception) shows inverted impulses, fixation of their libido upon persons of their own sex" (29). Still, Freud normalizes neurosis by insisting that most people are in fact neurotic in varying degrees. Second, Freud points to the presence of amphigenic and contingent inverts as evidence that environmental and psychical processes play a role in the development of inversion. In many cases, he argues, "it is possible to show that very early in their lives a sexual impression occurred which left a permanent after-effect in the shape of a tendency towards homosexuality," even if the subject himself cannot recall it (6). There is not, however, a direct causal link between these "sexual impressions" and homosexuality because, as Freud recognizes, many people are subject to the same early influences (e.g. seduction, mutual masturbation, comradeship in war, same-sex dormitories, negative heterosexual experiences, fear of the opposite sex) without becoming inverted or remaining so permanently. Freud therefore takes the position that "the choice between 'innate' and 'acquired' is not an exclusive one" (6).

For Freud, the child's innate bisexuality (the possession of both male and female psychical characteristics), along with the polymorphously perverse nature of infantile

sexuality, provides the foundation for homosexual development. If a child becomes "cathected" (i.e., the libido becomes improperly fixated) at any stage in the process of normal psychosexual development, homosexuality may result. Proffering what would become his most cited theory of male homosexual development, Freud asserts that "in all cases we have examined we have established the fact that the future inverts, in the earliest years of childhood, pass through a phase of very intense but short-lived fixation to a woman (usually their mother), and that, after leaving this behind, they identify themselves with a woman and take *themselves* as their sexual object. That is to say, they proceed from a narcissistic basis, and look for a young man who resembles themselves and whom *they* may love as their mother loved *them*" (11; footnote 1). Elaborating on this explanation in *Certain Neurotic Mechanisms*, Freud asserts that:

> there lies concealed another [factor] of quite exceptional strength, or perhaps it coincides with it: the high value set upon the male organ and the inability to tolerate its absence in a love-object. Depreciation of women, and aversion to them, even horror of them, are generally derived from the early discovery that women have no penis. . . . [This] may be ascribed to the castration complex. Attachment to the mother, narcissism, fear of castration—these are the factors . . . that we have hitherto found in the psychical aetiology of homosexuality; and with these must be reckoned the effect of seduction, which is responsible for a premature fixation of the libido, as well as the influence of the organic factor which favours the passive role in love" (6).

As this passage demonstrates, Freud believes that some individuals may have an "organic" predisposition to inversion, but that it is triggered or exacerbated by external experiences which then cause the interruption of normal psychosexual development, resulting in a "premature fixation of the libido." While, over the course of his lifetime, Freud becomes increasingly aware of the difficulty—or impossibility—of "curing" homosexuality, in *Three Essays*, he proposes that homosexuals "be subjected to pscyho-analytic investigation" in order to uncover where the process of normal psychosexual development was interrupted so that, potentially, the conflict may be resolved (29). Even as late as 1935, after recognizing that "the result of treatment cannot be predicted," Freud maintains that, "in a certain number of cases we succeed in developing the blighted germs of heterosexual tendencies, which are present in every homosexual" and that, fundamentally, "it is a question of the quality and the age of the individual" (Abelove 382). The difficulty of changing his patients' sexual orientation does not therefore shake Freud's belief in the model of arrested, psychosexual development, in which the innate "germs of heterosexual tendencies" failed to develop. In fact, even as Freud stops touting psychoanalytic investigation as a reliable cure for homosexuality, he still recommends it to the mother of a homosexual son, suggesting that "if he is unhappy, neurotic, torn by conflicts, inhibited in his social life, analysis may bring him harmony, peace of mind, [and] full efficiency, whether he remains a homosexual or gets changed" (Abelove 382). Presumably, change is the ideal outcome, but the other benefits of psychoanalysis will suffice in the event that the subject "remains a homosexual."

It is here where Freud and Havelock Ellis's differing ideological investments lead them in divergent directions. Freud's steadfast commitment to psychoanalytic theory

leads him to attribute inversion largely to the interruption of normal psychosexual development, while Havelock Ellis's eugenic concerns instead propel him to explore the role of heredity on the sexual instincts. Even as Havelock Ellis, like Freud, allows for the possibility of contingent or acquired inversion, he concludes that, with congenital inverts, the "hereditary character of inversion is a fact of great significance, and, as it occurs in cases with which I am well acquainted, I can have no doubt concerning the existence of the tendency" (*Sexual Inversion* 153, footnote 1). Remarkably, Havelock Ellis investigates the hereditary nature of sexual inversion not simply by identifying other inverts in his subjects' family line, but by identifying "the signs of a neurotic heredity" (150). For Havelock Ellis, sexual inversion is not an independent or isolated characteristic like it is in the case studies Foucault discusses in *Abnormal* but, rather, part and parcel of a nervous disposition. This nervousness may manifest in sexual inversion in one family member while, in another, it may take the form of hypochondria, neurotic anxiety, or neurasthenia. These conditions, Havelock Ellis argues, are hereditarily related, just like the family members who they afflict.

An interrelated point of contention among Freud, Foucault, and the eugenicists is the degree to which they believe the boundary between normality and abnormality is malleable. Even as we saw Foucault call attention to the historical and theoretical importance of Kaan's assertion that "it is natural for the instinct to be abnormal," the abnormal individuals in the case studies he examines are categorically differentiated from their normal counterparts. In Freud, however, it is presumed that most (if not all) of us experience periods of conflict during psychosexual development that may cause us to be, temporarily, abnormal. He contends in *An Outline of Pyscho-Analysis* that "it is not

scientifically feasible to draw a line of demarcation between what is psychically normal and abnormal; so that that distinction, in spite of its practical importance, possesses only a conventional value" (195). This is one of the many instances where Freud's thought is self-contradictory; he classifies sexual inversion as an abnormality worthy of psychoanalytic investigation, and yet he argues that what is normal and abnormal bears "only a conventional value." Despite these internal inconsistencies, the line between the normal and abnormal in Freud is noticeably less rigid than it is in Foucault's case studies.

The early eugenicists, including Havelock Ellis, follow Foucault to the extent that they view the normal and the abnormal as largely fixed categories. Certainly, it is pathologizing to characterize homosexuality as abnormal and to classify it alongside a host of psychiatric conditions. As progressive as Ellis was in his attempts to dispel many of the prejudices associated with sexual inversion, he nonetheless maintained that it was "an abnormal manifestation of the sexual instinct" (*Sexual Inversion* v). Yet, it is by virtue of this association that the eugenicists' perception of sexual inversion benefited from the positive, hereditary correlation among intelligence, imagination, and nervousness, thus avoiding the association, found in Foucault, with "imbecility," "arrested development," or danger. In the historical case studies Foucault examines, the abnormal individual's infantile lack of impulse control propels psychiatry to espouse the role of "protecting society from being the victim of the definitive dangers represented by people in an abnormal condition. . . . [P]sychiatry can claim for itself the simple function of protection and order . . . [of] the general body for the defense of society against the dangers that undermine it from within" (316). The early eugenicists, on the other hand, imbue the imaginative invert or neurotic with the potential for enhanced development. In

Florence Brown Sherbon's article "Adolescent Phantasy as a Determiner of Adult Conduct," published in the second volume of *Eugenics: A Journal of Race Betterment,* she declares that: "Upon such thin and tenuous stuff as the daydreams of adolescence may rest eugenic destiny" (8). While she does not explicitly discuss inversion or other variations of the sexual instinct, she does contend that imagination or "phantasy" during the years of sexual development plays a productive, determining role in emotional, intellectual, and social growth. In contrast to the early psychiatrists, like Kaan, who warned about the adolescent imagination's link to sexual deviance, Sherbon celebrates that time when puberty is in full swing, because "there is a widening of mental and emotional horizons" so that young boys and girls who "know so little of life" are "not inhibited from creating a world after [their] heart's desire. These reveries may take such hold upon the individual that their content profoundly affects the whole life . . . the whole personality has been enriched by dreams such as these" (9). Relying on her background as a child psychologist and home economics professor, Sherbon details the positive effects of imagination on youth, particularly those who have been "blest" with "a holy greed and a rapacious curiosity" (10). Promoting imagination as a world-building tool, she argues that

> probably no age ever rises above the level set by the daydreams of its youth which never fail to catch and crystalize its highest hopes. Nothing can furnish a better guide to educational and social effort than an intimate acquaintance with the spontaneous, undirected interests of the youth as expressed in purest form in reverie or phantasy. . . . Dreams of the future are oftenest of the vague future with boundless possibilities. (8)

It is in these "boundless possibilities," dreamed by gifted, precocious, and seemingly odd children, that a utopian, eugenic future lies. Instead of needing to protect or defend society from these children who may grow up to be "people in an abnormal condition," the eugenicists argue that they harbor, within their creative genius, the potential to bring about social, artistic, and intellectual transformation. Abnormal individuals do not therefore "undermine" society "from within," but instead have the power to *elevate* it.

The discrepancies between Freud's psychoanalytic theory and the case studies of sexual deviance Foucault examines, on the one hand, and the eugenicists' model of sexual variance on the other, may be due in large part to who, precisely, they understand to be abnormal. Unlike psychiatrists whose primary experience is with sexually abnormal patients who seek (or whose families seek) medical treatment for their co-existing, debilitating symptoms, the early eugenicists are disproportionately a part of the intelligentsia, a privileged group that includes many sexual inverts and other "neurotics" who productively channel their abnormal sexual instincts and imaginative potential into artistic, literary, and philosophical endeavors. The Progressive Era eugenicists' commitment to the evolution of human perfection, rather than continued adherence to present, biological normativity or the "flood of mediocrity" (Stone 22), allows them to see in the sexual invert an untapped source for human evolution and cultural progress. It is precisely this idea Canguilhem alludes to when he asks the question: "To the extent that living beings diverge from the specific type, are they abnormal in that they endanger the specific form or are they inventors on the road to new forms? One looks at a living being having some new characteristic with a different eye depending on whether one is a fixist [fixiste] or transformist" (Canguilhem 141). As a group committed to

transformation above all else, the Progressive Era eugenicists see in the abnormal person the "discordant note" who "we do not understand" but who may have the power to "help the world" through the gift of "spiritual parenthood" in the form of great literary, artistic, and cultural works (Edith Ellis 43). This is because the sexual instinct, according to Kaan and his contemporaries, controls not only sexual activity or expression, but "all mental and physical life" (283). Creativity in sexual object choice or sexual practices, they believe, translates into creativity in art and literature, political, economic, and philosophical thought, and the development of new technologies and other entrepreneurial endeavors. Not only does this association between sexual inversion and the imagination figure prominently in the early eugenics movement, but it is also a consistent theme throughout late nineteenth- and early twentieth-century literature, art, and popular culture (Oscar Wilde's *The Picture of Dorian Gray* and Marcel Proust's *Pederasty* being two prime examples) and in contemporary queer theory.[49]

This positive, heredity correlation among nervousness, intelligence, and the imagination is largely intertwined with the eugenicists' evolving conception of the ideal citizen. At the turn of the twentieth century, there was a strict divide between a socially conservative, Durkheimian understanding of "the average as the ideal" which operated according to the strategies of normalization deployed by what Foucault called *scientia sexualis*, and a more modern and socially progressive, Galtonian understanding of human progress that relied upon those of exceptional intelligence to move society forward,

[49] See Edelman, Lee. *Homogrophesis: Essays in Gay in Literary Theory*. New York: Routledge, 1994; Davis, Whitney. *Queer Beauty: Sexuality and Aesthetics from Winckelmann to Freud and Beyond*. New York: Columbia, 2010.

delivering it from its current state of mediocrity. Psychologists and sociologists who ascribed to a Durkheimian view of social normativity regarded unusually high intelligence to be as much an abnormality as the other nervous conditions, and proffered the enduring stereotype that gifted children were physically weak, prone to illness, and socially handicapped, thus making them undesirable. More than any other eugenic figure, Stanford psychologist Lewis Terman altered the narrative of the child genius during the first decades of the twentieth century. While in his earliest work, *A Study in Precocity and Prematuration* (1905), Terman accepts Cesare Lombroso's thesis that there is a link between genius and degeneracy which results from premature sexual development, after becoming an avid student of Galton's work, he orchestrated longitudinal studies of gifted children in order to test the contrary hypothesis that high intelligence is an evolutionary advantage. It is precisely this opposition that Peter Hegarty refers to in *From Genius Inverts to Gendered Intelligence* when he states that "psychologists such as Galton and Terman were engaged in a century-long 'mad genius controversy,' opposing the work of psychiatrists such as Moreau de Tours (1859), Lombroso (1889), and Nordeau (1905) who conflated artistic genius with disequilibrium, degeneracy, and a host of other forms of pathological nonnormativity" (136). Using the Stanford-Binet Intelligence Scale he developed in 1916[50] to measure the children's intelligence, Terman began his seminal work, *Genetic Studies of Genius*, in 1921. Following his participants from early

[50] Tasked by the French government with creating a test to identify slow learners in the public educational system, Alfred Binet and Theodore Simon developed their first incarnation of the Binet-Simon Intelligence Test in 1903, and proceeded to publish revisions in 1908 and 1911. Using the Binet-Simon test as his model, American psychologist Lewis Terman made significant revisions, most notably altering its purpose to test for exceptional as well as low intelligence. He re-introduced the test as the Stanford-Binet Intelligence Scale in 1916, re-named after his own institution, which funded his research.

childhood through adulthood, he concluded that children of exceptional intelligence ranked at or above their peers in virtually all areas of development. They tended to have heavier birth weights, demonstrated increased vigor and vitality, performed well socially, and were able to readily adapt to their environments. While Terman was not able to prove his conclusion that high intelligence would necessarily lead to success later in life, he did succeed in repudiating the early twentieth-century belief that high intelligence was an undesirable physical and social handicap. Therefore, despite what have since been identified as flaws in his studies (the over-representation of middle-class, Anglo-Saxon children and a masculine bias in his definition of genius), at the time, Terman's studies lent the scientific validity necessary to support the eugenic position that high intelligence was a heritable and desirable evolutionary trait.

Terman was not only interested in demonstrating that high intelligence was not a dangerous form of insanity or degeneracy, but also that his gifted subjects did not support the nineteenth-century belief that people of genius had higher rates of inversion and other "nervous" conditions. In his third volume of *Genetic Studies of Genius*, Terman asserts that, according to his own (arbitrarily established) "masculinity-femininity' scale, men of genius rank just as highly in masculinity as their less intelligent counterparts and "invert tendencies are no more common among men of genius" (328). What is more telling than his published conclusions, however, are the actions he takes when composer Henry Cowell, one of his gifted children (now an adult), is arrested in 1936 for engaging in a sexual act with a seventeen-year-old boy. Writing an appeal on Cowell's behalf, Terman argues that Cowell has "delayed heterosexual adjustment because of the strong influence of his mother" who nurtured the development of his musical genius (136).

Quite to the contrary of his published findings, Terman argues that Cowell's genius—and the nurturing of that genius provided by his mother—resulted in Cowell's inversion. And, inverted or not, Cowell's ability as a composer is justification for dropping the charges. Instead of disputing the charges or arguing for Cowell's innocence, Terman uses the composer's musical genius as justification for "looking the other way" at his sexual proclivities. As this historical anecdote demonstrates, despite Terman's published results, he himself either still believes—or is willing to strategically deploy—the lingering association between genius and inversion. While the origin of "this form of genius was paradigmatically male," Hegarty explains, it "relied heavily on the performance of androgyny (Battersby, 1989), and androgyny raised frequent suspicions that a male genius might practice sodomy, or that a female genius might be Sapphic (Elfenbein, 1998)" (136). To a certain degree, this suspicion of inversion tainted the image of the genius, but this "association with genius was also commonly used to normalize homosexuality" (136). Freud employs this strategy in the letter I mentioned earlier which he writes to the concerned mother of a homosexual son, explaining that: "Many highly respectable individuals of ancient and modern times have been homosexuals, several of the greatest men among them. (Plato, Michelangelo, Leonardo da Vinci, etc.)" (Abelove 381). Presumably, highlighting the association between homosexuality and genius will persuade her that her son's sexuality is not an affliction or an impediment to greatness.

This logic is employed, over and over again, in eugenic literature. Since, as I have argued, many of the eugenic leaders were themselves members of the intelligentsia and considered intelligence to be one of the primary hereditary traits they were selecting for, they were largely tolerant of what they perceived to be an intelligent yet somewhat

"nervous" constitution. As Havelock Ellis explains in his autobiography, *My Life*, he himself has a propensity towards nervousness, and understands "this nervousness [a]s the servant of [his] intellect" (48), for it is this nervous "disposition that finds its expression mainly in literary channels" in one form or another (44). He clarifies that his own condition is merely the "intellectual worker's nervous hyperesthesia" (266) which he inherited from his mother and which "renders me in some ways an abnormal person, though scarcely morbid" since it is "disciplined by my will; it is never likely to be degraded into insanity. . . . [H]owever wide and apparently eccentric the orbit in which it seems to move, my life will in the end be found to have followed a rounded harmonious course, at one with Nature" (48). His wife's "inherited nervous instability" (267), on the other hand, is more pervasive, he argues, because it leaves her prone to bouts of physical weakness, ill-temper, and reckless spending. Though he does mention her life-long romantic relationships with other women, they take a backseat to the constitutional "instability" which poses a more "serious risk" (267). Still, it is this nervousness which, he says, attends the genius behind her literary works.

It is worth noting that Havelock Ellis identifies his own nervousness as having been inherited from his mother, though in him it is "scarcely morbid," while the nervousness his wife inherited from her maternal line threatens "nervous instability." Nervousness, in both his account and Terman's—where the nervous, effeminate invert is described as being overly attached to his mother—seem to mark nervous excess as a sex-linked trait. For, when men exhibit nervousness, it is usually described as being biologically inherited from their mother or developed as the result of over indulgence by the mother. This is not surprising, as Foucault observes that nervousness or hysteria was

understood in the nineteenth century to be a primarily female disease, often linked to the movement of the uterus. While Havelock Ellis makes no mention of female anatomy, it does appear that he has, perhaps unwittingly, internalized the association between nervousness and femininity. Yet, unlike many of his contemporaries who dismiss nervousness as a mental illness, Havelock Ellis carves a path for its redemption. In the passage above, his invocation of the will and the intellect, both of which have a long-standing association with masculinity, work to counteract the stigma accorded with nervousness. For, once nervousness becomes the feminine servant of the masculine intellect, it is no longer a sign of disgrace. On the contrary, it is the energetic secretary that performs the laundry list of administrative tasks which allow the intellect to shine. And, through the discipline of the masculine will, this nervousness is kept in check, never giving way to excess. This balance of masculine and feminine energies provides, in Havelock Ellis's words, a "rounded harmonious course, at one with Nature." As such, nervousness, when combined with the will and the intellect, is not rendered unnatural, but is in fact "at one with Nature."

In Edith Ellis's own treatise on sexual inversion entitled "Eugenics and Spiritual Parenthood," which she delivers as part of her American tour in the 1910s, she employs much of the same language and metaphors as her husband. While at first it appears both Ellises are in agreement, a closer inspection reveals that through slight alterations of phrase, she is proposing a rather different relationship among nervousness, intelligence, and inversion. For her, the normal is

> the true harmony in nature, and the invert is the seeming discordant note. But in music the discord has its place. Without it, should we get the

> perfect harmony? It is possible that inversion and genius have some sort of affinity. They certainly both tend to belong to the neurotic group. Are we, then, to condemn both genius and inversion at sight and make laws for their crucifixion, or are we to find out the special laws and meaning of these forces in the evolution of the world? Both genius and inversion are capable of being forged into powers instead of remaining menaces, if they are rightly approached and understood. A tolerant and sane attitude towards the question of inversion might make an abnormal person a veritable Knight of the Grail. (63-4)

By affiliating genius with inversion and alluding to Christian theology through the notion of "crucifixion," Edith Ellis likens the invert to a Christ figure: a crucified misfit whose greater purpose is unintelligible to the lay people, just as Jesus's purpose was unintelligible to the Romans. Continuing the metaphor throughout the body of her essay, Edith Ellis refers to the invert as the "redeemer" who will bring "glory" to the human race, for, as she asserts, "all the Saviors of the world have been aliens who would not have been asked to sit even on the doorsteps of Respectability" (67). Much like Christ's disciples, Edith Ellis paints the eugenicist who understands the "special laws and meaning" concerning the invert and his role in the "evolution of the world" as a visionary who can guide the "discordant note" to his proper place, thereby achieving natural harmony. Skillfully merging Christian theology with a scientific understanding of evolution, Edith Ellis employs one to justify the other. In so doing, not only does she successfully marry two worldviews which often seem to be at odds—science and religion—but also eugenics and sexual inversion. Speaking on behalf of a contingent of

early twentieth-century eugenicists, Edith Ellis flouts both the Durkheimian notion of the average as the ideal and a Foucauldian understanding of normalizing discourses which compel sexual uniformity and, instead, promotes the Christ-like invert who embodies the Galtonian ideal of human evolution and progress which relies upon those of exceptional intelligence and creativity to move society forward. True to the eugenic vision of ever-increasing human perfection, Edith Ellis insists we must not be content with normality, mediocrity, or custom but, instead, must always seek the new, the creative, and the different. Often times, it is that which we do not understand that holds the greatest evolutionary possibility.

Edith Ellis's Spiritual Parenthood

Through her proposal of "spiritual parenthood," Edith Ellis asserts that the eugenicist and the invert can work together to better the human race for, as counter-intuitive as it may seem, they each have the same goal. While the contingent and amphigenic invert are free to marry and bear children because they have the potential to take opposite-sex as well as same-sex love objects, absolute inverts necessitate a different path. Since, presumably, the absolute invert has no desire to engage in heterosexual intercourse and to do so would be to act contrary to his own nature, Edith Ellis offers an alternative to marriage and children. She suggests that "if the invert is true to what ought to be his ideals in this matter and refuse to cheapen love on any side, he can thus join hands with the eugenicist, because their aims will be to diminish unfitness and increase racial possibilities" (66). With this proposal, Edith Ellis offers a two-pronged solution. She validates the absolute invert's desire to abstain from heterosexual marriage, and she assuages the fears of those eugenicists who worry about the possibility of an "inherited

nervous excess." As Havelock Ellis explains in *My Life*, he understands nervousness to exist on a continuum, much like sexuality does. Some degree of nervousness is productive and desirable; it serves the intellect. An "excess" of nervousness, however, may lead to recklessness, instability, and ill-temper. In suggesting that the absolute invert abstain from heterosexual reproduction, Edith Ellis is not seeking to stamp out sexual inversion but, rather, to prevent the invert from entering into an unwanted relationship or bearing children who will exhibit a nervous excess, characterized by constitutional instability—not homosexual object choice. It is in this way, Edith Ellis argues, that the absolute sexual invert's own proclivities make him or her a natural ally of the eugenicist. While, as we have seen, Freudian psychoanalysis attributes sexual inversion to interrupted psychosexual development and ascribes to a Foucauldian model by seeking "a corrective technology . . . for these anomalies" (Foucault 105) in the form of psychoanalysis and exposure to the opposite sex, Progressive Era eugenicists believe this treatment is ineffective, abusive, and unnecessary. Edith Ellis argues that: "The pretense of it, and here lies the great danger to the State, can be cured by marriage, eased by bromides, trained into control in asylums, and influenced by all the arguments of Religion" (63). While these treatments may give the "pretense" of a cure, in reality, they do nothing but ease the fears of the state. In fact, "to be induced to enter into a loveless marriage as a cure, which is often the conventional advice," Edith Ellis argues, "is to twice curse—to curse the partner in the fraud, and their offspring. The great immoralities of the race often spring from following such so-called 'moral' advice. Such advice is against the aim of Eugenics" (62).

While Edith Ellis advises that absolute inverts not enter into heterosexual marriages, she does not suggest that they abstain from sexual relationships altogether. Quite on the contrary, she asserts that the "true invert, under Eugenics combined with ideals," may be blessed with love "if Fate send him a true mate in the form of another alien, for in these things affinity has its own laws and pure love can be traced in strange hiding-places, then the bond shall be as binding, as holy, and as set for splendid social ends as the bond of normal marriage" (65). In place of a heterosexual marriage that would produce genetic offspring, Edith Ellis envisions that the invert will be blessed with a same-sex relationship, much like a "normal marriage," in which each partner might give birth not to a flesh-and-blood child but, rather, to a work of art fueled by the invert's genius. It is this artistic form of "giving birth" that Edith Ellis calls "spiritual parenthood." Articulating the role of spiritual parenthood within the eugenics movement, she writes that it is one of two methods through which the ideals of the eugenicist may be obtained. The first, physical parenthood, "has for its object the improvement of the breed, and the second [spiritual parenthood] has for its object the making the best use of what we possess, under the present conditions" (57). Extrapolating on what she means, Edith Ellis writes that it is the mission of the eugenicist to encourage the invert to "stimulate, through their work, the ideals of those who are physically equipped for race production, and so indirectly affect unborn generations" (57). The role of the absolute invert, therefore, is to "devote their energies to those ends which indirectly aid the higher development, whether it be in the fields of art, science, or religion" (57). For, as she asserts, it "is as glorious a thing to give to the world as a child of love, a work of art, as one with hands and feet" (66). Through her division of physical parenthood and spiritual

parenthood, Ellis envisions a role for the invert in carrying out the eugenic mission of engineering a better human race.

Here, Edith Ellis invokes the metaphor of service, just as her husband does in his discussion of eugenics and inversion. Where they differ is in their identification of the servant: for Havelock, nervousness is the servant of the intellect while, for Edith, it is the intellect that is the servant. By virtue of the invert's creative genius, she argues, he is equipped to serve the human race and give to those who will have children with "hands and feet." Still, within Edith Ellis's own thought, there is a persistent slippage. The invert is simultaneously the servant of mankind *and* an "alien" who operates on a higher level than the so-called normal person. The invert's nervousness does not require, as Havelock Ellis suggests, continual discipline or restraint so that it may be "at one with Nature." On the contrary, Edith Ellis's invert is imagined to be above Nature and tasked with pushing Nature forward. The metaphor of servitude thus serves a dual purpose. The invert's very existence is justified through the metaphor of service; he can be tolerated because he is a servant to mainstream society. At the same time, the servant holds an elevated position in Christian theology, which Edith Ellis invokes through her allusion between the invert and Jesus Christ. In Mark 10:43-45, the Bible reads: "whoever would be great among you must be your servant, and whoever would be first among you must be slave of all. For even the Son of Man came not to be served but to serve, and to give his life as a ransom for many." It is this understanding of service that infuses Edith Ellis's description of the intelligent invert. To abstain from marriage and children, like Christ—and to instead dedicate oneself to a life of service as ransom for the betterment of mankind—is the highest honor possible. It is also a far cry from Havelock Ellis's understanding of

servitude as unglorified feminine labor. This vision of saintly service is also much more in line with Progressive Era ideology. Amidst the First World War, the rise of the welfare state, the protestant work ethic, and the growing ethos of social collectivism, *being of service* entailed a sense of value and pride that has been lost over the last century. It is, however, preserved in the heroic personages of Mary and Billy, two Christ-like figures whose greatest purpose is to be of service of mankind.

As we see in *The End of the Road, Fit to Win*, and *Personal Hygiene for Young Men*, the early social hygiene movement is perhaps even more invested in spiritual parenthood than in physical parenthood. As eternally queer characters, Mary and Billy accrue their status as heroes not by selecting well-qualified spouses or producing fit children, but by living up to the eugenic mission Mary proclaimed in her commencement address: "there can be but one truly great ideal—development of oneself for the service of mankind." The formula for this development is given, most succinctly, in the opening scene of *Personal Hygiene for Young Men.* Self-development comes not from expending libidinal energy for procreation, but from controlling that energy and expending it in "creative effort in art and music and all the finer experiences in life." It is this kind of personal development, exemplified by his acts of service to his fellow recruits, for which Billy Hale is awarded a commendation for bravery. Or at least, that is how it appears to the viewer. Throughout *Fit to Win's* ninety-minute duration, we never see a single battle fought, we never learn of their unit's successes or failures, and we never learn anything of Billy's bravery on the field—only his self-cultivation, leadership, and service in the barracks. Rather akin to a Jane Austen novel, *Fit to Win*'s narrative sequences focus exclusively on the men's interpersonal relationships and never on action, suspense, or

military exploits. This lingering, late nineteenth-century commitment to aestheticism and the "perceptible emasculation of the valoric soldier/hero model and a negation of war itself" (Blanchard 28) is deeply embedded in *Fit to Win*.

The product of a transitional ideological and temporal period, Billy Hale is at once the epitome of masculinity and emasculation: he is a natural leader, he is the best boxer in his unit, and he is the first recruit to make rank; yet, onscreen, he is dressed, lit, and filmed in a way that emphasizes his beauty and physique, he is defined narratively through his affective relationships, and he is a soldier who we never see step foot on the battlefield. Much like the military architecture of the Gilded Age which Blachard examines in "The Soldier and the Asthete," which, she argues, is defined by how its "aesthetic considerations dominated over military themes" (42), *Fit to Win*'s filmic aesthetic and narrative concerns take precedence over its military subject matter—despite being produced by the U.S. government during wartime. But, unlike the divide between the soldier and the aesthete that Blanchard describes during the Gilded Age, the Progressive Era's convergence of eugenic concerns with the new cinematic medium allow Billy Hale to be both; he is at once a soldier *and* an aesthete. Given this characterization, it appears (at least to the viewer) that Billy is awarded a commendation for his personal fitness and social service not on the battlefield, but off: teaching boxing as an alternative to (hetero)sexual activity, helping The Kid overcome his alcoholism, convincing Hank Simpson to get tested for venereal disease, and avoiding any sexual entanglements with women. In fact, rather than resisting sexual temptations like his fellow soldiers, Billy appears to experience *no* temptation. Socially, he seems drawn exclusively to his fellow men. Perhaps it is this seemingly queer energy—imaginative,

intellectual, and 'abnormal'—which allows him to excel in boxing, social bonding, and leadership, allowing him to rise quickly within his company, becoming a captain after only one year in the service. Symbolically, Billy's role in the film appears to be that of spiritual parent, guiding his recruits in a way that their commanders and their own ineffectual parents (Hank Simpson's country bumpkin dad; Kid McCarthy's clueless, wealthy father) were unable to do. It is this role which not only *Fit to Win*, but the majority of the films in this archive, seem to tout above all else, even promoting self-cultivation, restraint, and social utility *at the expense of* physical parenthood.

While *Fit to Win* avoids confronting homosexuality directly by leaving Billy's sexuality up to the imagination of the viewer, Edith Ellis continues her treatise on spiritual parenthood by taking up the issue of same-sex relationships. While she refers to homosexuality as abnormal, she argues that it is not itself a vice. "The test of the value of an abnormal relationship," she declares, "is whether it cheapens love in any shape or encourages any form of prostitution. Abnormality is, then, productive of vice, as normal actions are on such lines, and legislation must do its best and its worst with the offenders in each class. Hurried drastic legislation, however, by the terrified about what is not yet even classified as normal or abnormal will only increase social evils" (63). As this passage attests, prostitution, and not homosexuality, is the vice that threatens both mainstream social morality and the eugenic program. But Edith Ellis does not stop there. Employing the conventional logic that sexual inversion is abnormal and then, in the very next sentence, casting doubt on this classification, she rhetorically inverts the source of society's "social evils." It is not the so-called abnormals who are disproportionately increasing social evils but, rather, the "terrified" who are prematurely taking action

against them. Edith Ellis is not guarding against the threat that non-heteronormative sexuality poses, but the effects of "hurried drastic legislation" which unnecessarily punish sexual inverts and use fear to compel them into unwanted heterosexual marriages and parenthood. Instead of passing legislation to punish non-heteronormative sexuality itself, Edith Ellis suggests that only those relationships, both normal and abnormal, which cheapen love and foster prostitution should be penalized. In other words, same-sex relationships that are grounded in love and do not foster prostitution are not productive of vice and, therefore, should not be legislated against. Through this assertion, she establishes an unlikely dichotomy: homosexuality and love verses drastic legislation and social evil. As contrary as this might sound to the early twentieth-century reader, she supports her argument by reminding them that "as many sins against great underlying laws of affinity are committed in legal marriage as in the ranks of those we designate as abnormal" (58). For Edith Ellis, the greatest laws of affinity appear to be those of true love and social responsibility. As she argues, "it is necessary to combine ideals with eugenics," for "good sinews and muscles" are not enough to make a good mate, a good parent, or a good citizen (58).

Conjoining her passionate appeal for love with a modern entreaty to scientific rationality, Edith Ellis argues that we must privilege our commitment to democracy and our obligation to mankind over our sentimental fears and moral prejudices. Much like Hall who believed that the goal of a eugenic education was to "establish a psychic inhibition at the threshold of love" in order to prevent infatuated partners from entering into unions that "can only bring degradation, and death, and that maudlin so-called love

which is blind to imperfections" (79), [51] Edith Ellis draws a distinction between what was understood at the time as eugenically informed true love and old-fashioned sentimentality, unrestrained appetites, and false appeals to the heart as a form of manipulation. Entirely taken with modern science's epistemic allure, the Progressive Era eugenicists believed science held the key to unlocking human progress both in terms of genetic traits and cultural achievements. For this brief window in the early twentieth century, eugenics and love—or science and aesthetics—were thought to be complementary rather than opposed, or even simply distinct, epistemological categories. In their view, the introduction of rationality and logic into the previously irrational process of falling in love transformed it from an emotional, appetite-driven endeavor into a psychologically scientific process which could be objectively measured, evaluated, and sanctioned via adherence to empirical standards. What Edith Ellis introduces into the mix is the idea of eugenic love between sexually abnormal individuals: eugenic love that does not result in heterosexual procreation. While Edith Ellis's declarations here are original and thought-provoking, the idea that the sexual invert is caught up with the question of love and aesthetics is not new. In fact, if we look back at both the scientific and literary texts produced from the late nineteenth to the early twentieth century, it becomes clear that, during this transitional period, sexual inversion, aesthetics, love, and creative intelligence are all bound together and thought to be positively correlated. Despite the claims of some historians, like Heather Seagroatt, who insists that science "fails to recognize aesthetic influences and genealogies in its account of life" (747) and that their

[51] A lengthy discussion of Hall's views on eugenics and love is on pp. 99-102 of Chapter One.

merging can only be found in literary texts that "unite the scientific and the aesthetic to highlight how fundamental the latter is to any scientific theory of the mind" (511), a closer examination of the work produced by evolutionary scientists and psychologists during this period tells an altogether different story. In some of the most ideologically transformative and widely read scientific publications of the late nineteenth century, including Noah Porter's *Human Intellect: Psychology and the Soul* (1869), John Tyndall's *Scientific Use of the Imagination and other Essays* (1872), and Elijah Janes's *The Intellect: An Introduction to Philosophy* (1884), the authors approach the study of science as inseparable from the study of culture and philosophy and identify the intellect and the imagination as the source of human ingenuity and progress. In Porter's words, "Without an active imagination, philosophical invention and discovery are impossible" (369).

With the "abnormal" sexual instinct already understood in psychiatric discourse to have "a particular intense, privileged, and constant relationship with the imagination" (Foucault 281), it becomes understandable how the association between sexual abnormality and aesthetics evolved and became a popular scientific and literary theme during this historical period, perhaps most notably in the work of scientists and psychologists like Francis Galton and Lewis Terman and literary figures like Oscar Wilde, Marcel Proust, and Gertrude Stein.[52] In his article "Oscar Wilde, the Science of Heredity, and *The Picture of Dorian Gray*," Michael Wainwright addresses "the reciprocal manner in which evolutionary thought and aesthetic practice shaped one

[52] All of them were, to varying degrees, involved with the eugenics movement.

another in the late nineteenth century" and how "the science of heredity emerg[ed] as a potent source of his [Oscar Wilde's] aestheticism" which, he argues, is a "source that, for the most part, has remained critically latent" (494). Himself at once an avowed eugenicist, sexual invert, and aesthete, Oscar Wilde "desired a form of reconciliation between science and aesthetics" (516) that plays out in his writing: in his journalistic attempts to understand himself and his own condition, in his essays on the theory of literature and poetry, and in his only fictionalized novel, *The Picture of Dorian Gray.* In his work, Wilde uses the scientific theory of evolution and the artistic theory of aesthetics to approach perfection from two different yet complementary angles. While I do not wish to take on *The Picture of Dorian Gray* in its entirety or repeat the work of previous theorists, including Wainwright and Seagroatt, who have written extensively on Oscar Wilde, I do wish to briefly demonstrate how the intersection of evolutionary theory, aesthetics, and sexual inversion come together in his work. *The Picture of Dorian Gray* is peppered with both scientific and eugenic language—atom, germ, heredity, degeneration—all of which play a role in the active processes which visually manipulate the novel's aesthetics, both textually and ideologically, through the transformation of Hallward's picture. For instance, in one of the novel's more poignant scenes, after abandoning his love interest, Sibyl Vane, Dorian notices that Hallward's picture has undergone visible changes. Immediately seeking a scientific explanation, Dorian ponders: "Might not these things external to ourselves vibrate in unison with our moods and passions, atom calling to atom in secret love of strange affinity?" (Wilde 84). Lending credence to Dorian's position, his associate, Lord Henry Wotton, ventriloquizes Hall as he asserts: "the experimental method was the only method by which one could arrive at

any scientific analysis of the passions" (Wilde 54). An eternal bachelor more interested in his appearance and his cultural artifacts than in women, marriage, or heterosexual procreation, Dorian represents the sexually abnormal aesthete who has a privileged relationship to the imagination, cultural transformation, and evolutionary change. Wilde himself describes Dorian as a man "in whom the romantic and the scientific temperaments were so strangely blended" (510). Here, "romantic" can be read as an allusion both to aestheticism and sexual abnormality, while the "blending" between this and his "scientific temperament" reveals a cultural recognition of the relationship—even if seemingly "strange"—between aesthetics, sexual abnormality, and science.

In fact, in his own essay "The Critic as Artist," Wilde explains his position that "Aesthetics, like sexual selection, make life lovely and wonderful, fill it with new forms, and give it progress, and variety and change" (1154). This "progress, and variety and change" is at the heart of the eugenics movement, and it is the sexual invert's privileged relationship to the imagination that drives it. While Wainwright does not address sexual abnormality in particular, he nonetheless recognizes how *The Picture of Dorian Gray* posits "the hereditary germ as a molecular constituent, but one that infects both blood and textuality—the respective media of biological and cultural inheritance—according to the tradition of blending" (512). With the ingrained belief that there is a correlation between the imagination and the sexual instinct, and a transitory overlap between science and aesthetics, the "blending" among them enables the sexually abnormal person to become Edith Ellis's discordant note who holds the power to transform our "biological and cultural inheritance" through both their "blood and textuality." Insisting that the "dangerous novel in question" throughout *The Picture of Dorian Gray* is Joris-Karl

Huysmans's *À Rebours* (1884), in which its protagonist, Des Esseintes, is "an aesthete for who artifice is the distinctive mark of human genius," Seagroatt suggests that this affinity among sexual abnormality, aesthetics, and intelligence successfully infiltrated late nineteenth-century popular consciousness (511). In fact, this ideological constellation, which formed in the last decades of the nineteenth century and waned after the First World War, is crystallized in Wilde's assertion that "all the great discoveries of science have been stated before in poetry" (2), which, as Wainwright argues, "has remained critically latent." By resurrecting and re-examining this constellation, perhaps we can resurrect these poetic ideas—ideas captured by Edith Ellis in her American lecture tour—and they can become scientific reality with the advent of twenty-first-century genetic technologies. For, if we can reconcile these two poles which are now so often thought to be at odds (science and aesthetics), a whole new range of possibilities might emerge.

Conclusion

While Edith Ellis envisions physical and spiritual parenthood as separate and contends that the latter is the best option available for the absolute invert, her position appears to be one of practicality, tailored to the early twentieth century world in which she lived. Unsure of how the world would change, but certain that it would, Edith Ellis envisions: "When the day comes, as it is surely coming, when no part of the body is held in contempt and forbidden its own particular service for the world . . . physical parenthood having become one with spiritual parenthood, and spiritual parenthood being acknowledged as a manifestation of Nature's finest vibrations of the body, we may thus doubly welcome Eugenics as the helper of Love, Life, and Art in all their manifestations" (69). In some respects, this passage is remarkably visionary; Edith Ellis foretells that it

will be eugenics (or, more properly, genetic engineering) that emerges as the "helper of Love, Life, and Art," scientifically enabling the unification of physical and spiritual parenthood. Yet, this passage is also riddled with contradictions and mired in uncertainty. In one breath, Edith Ellis hails spiritual parenthood as serving a higher purpose than physical parenthood. Then, in her very next utterance, she expresses a yearning for the unification of the two as though spiritual parenthood on its own is insufficient. If her objective is to call for the valorization of the sexual invert as a spiritual parent, then why advocate for a merger with physical parenthood? Even if we grant that both types of parentage are crucial for human progress, why must they fuse rather than simply co-exist? Even supposing the logic behind this union were clear, Edith Ellis fails to provide an explanation for *how* this fusion would happen and *what* it would look like. These uncertainties are compounded by her lack of clarity in invoking "the body." When Edith Ellis says that "no part of the body" should be "held in contempt and forbidden its own particular service for the world," to which part of the body is she referring? The brain? The reproductive organs? Each part of the body equally? This ambiguity continues as she asserts that spiritual parenthood is the "manifestation of Nature's finest vibrations." Are these "vibrations" brain waves, the rhythms of sexual intercourse, the release of oxytocin and other hormones, or something else entirely? While Edith Ellis's argument is certainly thought-provoking, it leaves us with only a partial understanding of her vision. Perhaps, there is a very good reason why her proposal is so incomplete and self-contradictory; she, like many writers, philosophers, and scientists, is trying to imagine a world beyond both the material and ideological limitations of her present.

In many respects, we have come a long way since Havelock Ellis introduced sexual inversion as an explanatory model for sexual identity. We now recognize the distinction between sexual orientation and gender identity, homosexuality has been de-classified as a mental or neurotic illness and removed from the DSM and, through the use of scientific interventions like in vitro fertilization, same-sex couples and non-nuclear families can become physical parents by bearing biological children. As of 2017, same-sex marriage is legal in all fifty states, LGBT couples are eligible to adopt nationwide, and gay men and women can serve openly in the armed forces. Yet, I would strongly caution against heralding the twenty-first century as the realization of Ellis's vision. In fact, we are far from it. Instead of "physical parenthood having become one with spiritual parenthood," their demands are often diametrically opposed. Parenthood in the twenty-first century is entirely privatized; we never saw the communal kitchens or daycares, state-sponsored healthcare, or other social welfare programs envisioned by the early eugenicists which might have given us the resources necessary to, comfortably, be both physical and spiritual parents. Instead, we—especially women—are often forced to choose; sometimes, we are forced to choose neither as remunerated labor may not be commensurate with either path. If anything, in the century since Edith Elllis's essays, the body has been held in greater "contempt and forbidden its own particular service for the world." Funding has been cut for clinics like Planned Parenthood which were designed to give individuals choices over their bodies and the ability to decide what their "particular" service to the world will be. New bills are introduced regularly in state congresses to limit individuals' rights over their bodies, and in thirty-three U.S. states it is still legal to

practice employment discrimination on the basis of gender identity and/or sexual orientation.

The civil rights gains we *have* made over the last century have been achieved not by recognizing or valuing queer difference but, on the contrary, by compelling domestic normativity (marriage, child rearing, the nuclear family) and by exploiting queer men and women not as producers of queer value but, instead, as a viable consumer base (rainbow Doritos, Pride parades sponsored by Target, HRC marriage bands). In the twenty-first century, being pro-LGBT is no longer radical, but trendy. On June 26, 2015, when the U.S. Supreme Court handed down its decision in *Obergefell v. Hodges* which legalized marriage equality, facebook exploded in rainbow hues. With one click of the mouse, the movement for queer rights became a social media fetish: a way of tacitly demanding homonormativity, proudly broadcasting one's social liberalism, and getting the affective benefit of participating in a transformative social movement without ever taking any direct action, or even leaving the house or putting down the smart phone. Gay chic has become the latest brand of neoliberal multiculturalism, exploding not only online but also on film and television, in music and magazines, and in other digital media. In fact, MTV's new hit show *Faking It* hinges on the premise that two high-school girls can become popular simply by *pretending* to be lesbians. Promoting uncritical identity tourism by suggesting that "wearing" sexual difference is a fun way to become prom queen, *Faking It* skirts the complex social, economic, political, and familial issues associated with actually *being* gay. As these examples attest, while there has been progress made over the last century in national attitudes towards sexual non-normativity,

that progress has by no means been linear, and we have, unwittingly, created new social, political, and economic dilemmas specific to the current, neoliberal moment.

In many ways, Edith Ellis's vision of spiritual parenthood and queer politics is more radical than that espoused by the mainstream LGBT rights movement today. By transforming the sexual invert into a socially useful and productive citizen, Edith Ellis's eugenic program strategically avoids the threat that homosexual asociality poses for society at large, what Leo Bersani first refers to in 1996 as "the anti-relationality inherent in all homo-ness" (164) that has since become the dominant explanatory framework in queer theory. Spiritual parenthood not only makes room *within* heterosexual society for queer difference, but it actively celebrates queer excess by putting it to use in the service of both conservative capitalism and progressive cultural evolution. In so doing, it provides a challenge to Bersani's assumption—written after an additional seventy years of homosexual exclusion—that "perhaps inherent in gay desire is a revolutionary inaptitude for heteroized sociality. This of course means sociality as we know it, and the most politically disruptive aspect of . . . gay desire is a redefinition of sociality so radical that it may appear to require a provisional withdrawal from relationality itself" (7). While Bersani may be correct in asserting that "*homo-ness itself necessitates a massive redefining of relationality*" (76), Edith Ellis's vision of the socially useful yet emphatically queer citizen challenges his contention that the "redefining of relationality" necessarily means a *rejection* of relationality and the fundamental incompatibility of homosexuality and the social. Precisely because of the decades of programmatic homosexual discrimination, as well as the larger social, economic, and political shifts that have taken place in the intervening years, the answer to the question "Should a

homosexual be a good citizen?" (113) may be emphatically different. Were we to have adopted Edith Ellis's model of spiritual parenthood in 1914, perhaps we would have found a way to answer "yes," and perhaps our definition of what a "good citizen" looks like would be colored by precisely that queer excess she encouraged us to embrace. It is conceivable that the "political threat" homo-ness entails because of the "energies it releases, energies made available for the unprecedented projects of human organization" (123), could have been used to rethink the homonormative nature of the political rather than to undo it entirely, bequeathing to us a more radical inheritance of queer politics. Or, perhaps, it still can. By teasing out the ideology underlying the eugenic program's conception of and vision for sexual non-normativity, we may find the ideological and practical tools necessary to redirect the course of queer politics and genetic engineering as they are bound to intersect in the years to come.

One crucial point that the eugenicists' hereditary model of sexual inversion offers is a precedent for recognizing that sexual orientation has a biological component, yet asserting that it is not something that needs to be weeded out, selected against, or "fixed" through genetic manipulation. If one day modern science allows us to "find out the special laws and meaning of these forces in the evolution of the world," and, as some twenty-first-century scientists believe, there is such a thing as a "gay gene" or series of genes, and there is a way to screen for, alter, or "turn them off," the early eugenicists have given us an eloquent argument against such a misuse of genetic engineering. Additionally, though the association among homosexuality, high intelligence, and creativity may be nothing more than a cultural stereotype, the eugenicists have underscored the importance of recognizing queer difference rather than compelling

uniformity. If they could find value and social utility in the abnormal person *as abnormal,* certainly we in the twenty-first century can do the same. While we may no longer consider non-heteronormative individuals "discordant notes," certainly, they (we) are still an integral part of the harmony that makes up both the human genome and the social landscape—a harmony that must be maintained. Each note "has its place." As we move forward into the frontier of human genetics, we will undoubtedly uncover a myriad of other genetic anomalies and human traits that we do not readily understand, and, as the Progressive Era eugenicists have shown us, we must not allow a "conventional attitude towards what we do not understand [to] waste or ruin powers which could otherwise have helped the world" (43).

One way of preparing ourselves for this new frontier in human genetics is to stretch our perceived limits and actively envision and experiment with alternate futures. One ripe avenue for this experimentation is science fiction; science fiction, as a genre, is premised upon solving the impossible social, political, or technological problems of our current world. Through science fiction, we can dream alternate worlds where we are unconstrained by rational, material, or technological boundaries and where the laws of present society do not limit our ingenuity. It is towards this kind of science fiction future that Edith Ellis appears to gesture as she calls for a reconciliation between physical and spiritual parenthood. After all, the world Edith Ellis imagines is not our twenty-first-century present of LGBT normalization but, rather, something more akin to a new, queer world order; it is not the lesbian separatist vision of Valerie Solanas, Marilyn Frye, Kathy Rudy, or others, but a world where the abnormal is valued *as abnormal*, where spiritual parenthood and physical parenthood can co-exist or overlap, and where the normal and

abnormal can live side by side in harmony. While Edith Ellis's plan is riddled with contradictions—at some moments, she calls for equality with the normal and, at others, she calls for the superiority of the imaginative invert—she has nonetheless given us a foundation on which to build. We, as thinkers, writers, filmmakers, and dreamers, can now move beyond our real-world constraints and use the possibilities afforded by science fiction to imagine different, genetically-informed futures. Turning to early twenty-first-century North American sci-fi films and television shows in the next chapter, I will examine how they use the premise of eugenics to envision how the abnormal hero or heroine might lie at the center of value and what a collectivist, service oriented, non-heteronormative society might look like. It is in these alternate futures that we may find the clues necessary to ethical, genetically- and technologically-enhanced world-building in the real twenty-first century.

CHAPTER THREE:

PATENTING THE HUMAN: ORPHAN BLACK, SYNTHETIC DNA, AND THE STERILITY SEQUENCE

Dr. Aldous Leekie: "You're a eugenicist, Dr. Cormier. Is that a dirty word for you as a scientist?"

Dr. Delphine Cormier: "No."

— *Orphan Black,* "Nature under Constraint and Vexed," season 2, episode 1

Biopunk thriller *Orphan Black,* a television show about a mysterious human cloning project, kicks off its season two premiere with the evocative prospect of reclaiming the word "eugenics." It does this through the charming personage of Dr. Delphine Cormier, the lesbian girlfriend and monitor of Epigenetics Ph.D. student and "science nerd" clone Cosima. Lilting the edges of her vowels as she speaks, Dr. Cormier's libertine sexual attitude, feminist jouissance, and impeccable scientific reputation make her a more palatable incarnation of new eugenics or, as she refers to her own philosophy, "Neotopian perhaps." Standing kitty corner to one another in an upstairs laboratory, Dr. Cormier's ashen blonde curls, street clothes, and canvas messenger bag contrast sharply with the aging Dr. Leekie's white hair and signature lab coat, emblazoned with Dyad's corporate logo. Through his first name, Aldous, he is an old-world embodiment of the dispassionate, dystopian future presaged in Huxley's *Brave New World* and, through his last name, bears a trace to Louis Leakey, the Leakey family patriarch who advanced the "Out of Africa" hypothesis. They are both eugenicists, but Dr. Cormier is everything Dr. Leekie is not: she is young, queer, inquisitive, and

emotionally invested in her subjects, including Cosima. This juxtaposition gives us our first glimpse into the complex web of eugenic ideology in the *Orphan Black* universe as well as our own: there is not *one* eugenics, but several.

Like any dynamic movement, eugenics bears a trace of its previous incarnations. Certainly, eugenics can never be fully dissociated from the early twentieth century practice of involuntary sterilization which disproprotiately affected poor women, women of color, and disabled women, or its corruption as a racist pseudoscience during World War II including the tragic role it played in the Jewish genocide and the illicit medical experiments at the internment camps. Because of these atrocities, eugenics has been reduced in the minds of many to a stage of history we would rather forget. But, as eugenics' origins in the Progressive Era has shown, it also bears another legacy. Interwoven with its racist, ableist, and classist ideology is another strain of eugenic thought and policy, one which dovetails with the principles of first wave feminism, public education initiatives, and the economic policies of the welfare state. Despite their divergent strategies of implementation, these distinct but overlapping eugenic legacies stem from a common source: the belief that we can use scientific knowledge to achieve human perfection. In their book *Flesh Machine,* the cultural critics known as the Critical Art Ensemble argue that "eugenics never died after its failed implementation during the early portion of the twentieth century. It has merely been lying dormant until the social conditions for its deployment were more hospitable" (119). The contemporary reemergence of eugenics is due largely to a change in how it is being framed and put in the service of different forces. Whereas eugenic science was once articulated by the state and enacted through public policy reforms, it is now administered by the corporation and

subject to the individual profit motive. With eugenic consciousness now spreading rapidly, we are at a precipice: it is up to us, as a society, to determine philosophically, scientifically, and legally, which brand(s) of eugenics we will implement and how. To this end, *Orphan Black* gives us a valuable template. Following Foucault's assertion that an affirmative biopolitics must fight biopower on its own terms, *Orphan Black* cleverly uses its different eugenic factions—Neolution, Brightborn, and the Proletheans—to play eugenics against itself. This illustration of conflict among the different factions of eugenics proponents offers a methodology: a dialectical approach of exposing the flaws in each group's program so that we might ultimately reach a synthesis of ideas for enhancing human existence in the present. This strategy has real-world applications as we consider the different branches of power, including national legislatures, military contractors, and global corporate networks, that are interested in owning and deploying human genetic substance.

We enter the *Orphan Black* universe in 2013, when the clones have reached young adulthood and are just beginning to uncover their biological origins. We learn, along with them, that they have been created by the fictional biotechnology company Dyad, steered by the secretive, multi-national cabal Neolution. Through a combination of cloning via somatic cell nuclear transfer and gene editing using "clone DNA,"[53] *Orphan Black*'s covert cloning operation includes two distinct lines: the female Ledas and the

[53] Currently, clone DNA is being used only in lower organisms. Molecular cloning involves the replication of one molecule to create a new population of cells with identical DNA molecules. These cloned DNA molecules are then transplanted into a new organism that serves as a living host. The new organisms are referred to as "transgenic" or "GMOs" (genetically modified organisms).

male Castors—named after characters from the Greek myth "Leda and the Swan."[54] By appropriating several mythomorphic elements to create its own genesis, *Orphan Black* presents its eugenic products—Leda and Castor—as both mundanely human and evolutionarily divine. They have been generated from a single source: a human chimera, Kendall Malone, who absorbed a male twin in the womb and thus carries two distinct sets of genes. The genetic brothers and sisters, or "sestras" as Ukrainian-raised "feral assassin" clone Helena calls them, were born via in vitro fertilization in 1984, one of the series' many allusions to Orwell's dystopian novel. Significantly, the early 1980s also marks the beginning of the neoliberal era in North America and Western Europe. Neoliberal ideology—privatization, perpetual crisis, future speculation, and a desire to capitalize on the life of the nation—is helically woven into the show's DNA.

Orphan Black's animating, eugenic mythos is a byproduct of how the modern life sciences and the political economy have developed in tandem. In *The Order of Things*, Foucault first theorizes how these two disciplines have continually informed and shaped one another as "the relation between visible structure and criteria of identity" in living

[54] In the Greek myth, the God Zeus takes on the form of a swan and (depending on the version) either rapes or seduces the mortal Leda on the same night that she sleeps with her husband, the mortal Tyndareus. Leda then becomes pregnant with two sets of twins who hatch from two different eggs. From one egg emerge the divine Helen and Polydeuces (the children of Zeus) and, from the other, the mortal Castor and Clytemnestra (the children of Tyndareus). The myth—both origin story and act of forced reproduction—echoes throughout *Orphan Black* as the Leda clones are continually reproduced by Neolution (through germ-line editing each individual egg) while, by virtue of an inserted sterility sequence, they are prevented from reproducing for themselves. In addition to this Greek reference, it is worth noting that Jean-Paul Sartre gave Simone de Beauvoir the nickname "Castor," the French word for beaver. According to some sources, the nickname originated because "beaver" in English sounds similar to "Beauvoir" while, according to others, it is because she was a steadfast worker, producing admirable academic work. It is largely in deciding not to marry or have children that de Beauvoir—as a woman living in the mid-twentieth century—was able to devote her time and energy to her academic pursuits, including treatises like *The Second Sex*, as well as explore unconventional romantic arrangements. I argue that de Beauvior's influence is palpable in *Orphan Black* in the way the series explores gender relations, reproduction, and sexual choice.

organisms, observed by biologists Lamarck and Candolle, is "modified in just the same way as Adam Smith modified the relations of price. . . . This principle (which corresponds to labour in the economic sphere) is organic structure" (244-5). This ideological and structural convergence between the life sciences and the political economy has only deepened since the 1980s due to the formation of a strategic alliance among state-funded biomedical research, financial capital, and the market in new technologies. At first, the new life sciences may appear radical but, on closer inspection, it is clear they owe much of their ideological foundation and practical support to neoliberal economic policy. Examining the growth of neoliberalism and the life sciences together in *Life as Surplus*, Melinda Cooper attests that the current neoliberal project is characterized by a doing away with the boundaries between the spheres of production (labor) and reproduction (life), thereby making reproduction, once thought to exist outside the market, suddenly available for commodification. Neoliberalism seeks to capitalize "on the life of the nation" as it projects its strategies for accumulation into a speculative future, where fluctuation is located at the center of production, unlike the earlier welfare state that maintained a foundational value (9). When reproduction is thought along neoliberal lines, a new relationship emerges between debt and life. Neoliberal theories of economic growth, crisis, and speculation are now part and parcel of the new life sciences. We are isolating stem cell lines, creating transgenic organisms, and buying stock based on the promise of future life in the form of cures for diseases, the regeneration of tissues, and, in the sci-fi world of *Orphan Black*, the infinite replication of ourselves through human cloning. In so doing, life is incorporated into the "non-measurable, achronological temporality of financial capital accumulation" (10).

Neoliberalism and the life sciences both seek to overcome the ecological and economic limits to growth associated with a Fordist system of production via a speculative investment in—or invention of—the future.

Orphan Black, which is produced by the Canadian company Bell Media in partnership with BBC America, is part of a larger corpus of internationally produced, English-language sci-fi television shows which use their aesthetic properties to stage the speculative quest for human perfection in a fictional world that recalls our neoliberal present. On screen, the *Orphan Black* universe's corporate profit motive, multi-national network of control, and speculative investment in a biologically-engineered future act as unifying threads, linking it with the other shows of the period: *Helix*, *Strain, Humans, ReGenesis, 12 Monkeys,* and *Sens8*, among others. As representative examples of new eugenic media, these sci-fi TV shows use their form to link the limitless potential of body manipulation with the endless manipulability of the media image. Through the postmodern blurring of fiction and reality, they assimilate other media forms including animations, medical imaging, and computerized graphics to achieve the visual manifestation of bioinformatics: the joining of information with biology. In fact, it is *media form* that makes these new genetic discourses possible. The only way we can visualize DNA or perform artificial gene synthesis is by using visual media technologies that can enhance, magnify, and distort what cannot be seen with the naked eye. In the late 1990s, new eugenic media evolved in conjunction with genetic engineering technology and is now coming of age in the post-Human Genome Project Era. Co-extensive with neoliberalism and late capitalism, it is produced by private, multi-national corporations and its purpose is not to educate but to make a profit by entertaining the consumer who

pays for the content. Its narrative is defined by the mission to direct human evolution through genetic experimentation. Whereas old eugenic cinema was interested in taxonomy, classification, and purifying the human genome, new eugenic media strives to re-engineer the human, creating a cyborgian vision of human perfection. *Orphan Black*, in particular, stages eugenic politics by using its aesthetic form to image the entanglement among capitalism, science, law, and media. This structural entanglement signals the stakes of my project and why I am bringing theorists who work on biopolitics, like Foucault and Melinda Cooper, to bear on media texts. If we want to understand biopolitics, we must think about media since it is through media that we are visualizing biopolitics' legal, economic, and ethical consequences. This is nowhere more evident than in *Orphan Black*'s depiction of the Leda and Castor clones who, through the magic of television, all appear onscreen together, visually representing how these different branches of knowledge are intertwined. They are, at once, the product of the limitless potential of body manipulation and the endless manipulability of the media image. Together, they make an aesthetic case for the value of comparative and interdisciplinary methodology in understanding the contemporary moment.

While *Orphan Black* presents several eugenics projects at once, the clones—and their cDNA—are the most suggestive for demonstrating how the infusion of neoliberal ideology into the new life sciences is shaping our deployment of new genetic technologies in the twenty-first century. In this chapter, I examine the Ledas' and Castors' synthetic DNA on three levels: as the object of an intellectual property patent, as a mechanism of both surplus life and sterility, and as a sexually-transmitted virus or bioweapon. As I argue, the neoliberal shift towards privatization entails a reframing of

the question of private property. While the modern legal subject had ownership over its body, the meeting of eugenic science and intellectual property law today demands the question: to whom does the body and its self-reproducing parts belong? In a departure from the distinction Cooper draws in 2008 between the stem cell line (not equivalent to a human and therefore patentable) and the germ cell line (equivalent to a human and therefore not patentable), I examine the new wave of biotechnology litigation that centers on the patenting of isolated genes and synthetic DNA sequences. The same forces that enable Neolution to proceed with its "next trench of patent claims" also corner several nations' high courts into leaving the door open to patenting "life itself" though a series of structural loopholes, including one created by the U.S. Supreme Court in its 2013 decision in *Association for Molecular Pathology v. Myriad Genetics, Inc. Orphan Black* thus provides an explanatory tool for how the modern legal system is structured by corporate pressures and a mode of legal interpretation that privileges private property rights. The synthetic biology that makes the clones' DNA patentable also carries sex-linked differences. Despite the series' insistence that "Leda and Castor have the same disorder," the fact that it manifests as a reproductive condition with auto-immune effects in the women and a neurological, sexually-transmitted virus in the men means it carries different consequences for the sexes which are, presumably, different by design. The women are, first and foremost, a biomedical experiment and the men, a military weapon. By investigating the disparities in how the Ledas and Castors are affected by—and affect others through—their cDNA, we gain insight into how our cultural understandings of gender are shaping science, sexuality, and reproduction. Finally, by contextualizing *Orphan Black* within the larger archive of contemporary sci-fi television and film, I

examine how the cultural projects of neoliberalism, capitalism, and advanced scientific technologies are molding the eugenic project as it reemerges as twenty-first century genetic engineering.

Neoliberalism and Orphans "In the Black"

Orphan Black's indebtedness to neoliberal economics is nowhere more visible than in the series title itself. *Orphan Black* is an internal reference to "orphans in the black," or undocumented children who are hidden in the pipeline to prevent them from becoming the subjects of medical experimentation. As we learn in season two, Siobhan Sadler runs an underground network where she hid her adopted daughter, "rebellious punk" clone Sarah, from the Dyad Institute for nearly three decades, preventing her from having her DNA exploited for corporate gain. The neoliberal corporatization of biology and the underlying profit motive are further suggested by the more familiar meaning of "in the black." When a business is in the black, it is considered profitable. *Orphan Black*'s mise-en-scéne, littered with Dyad's corporate logo on everything from thumb drives and lab coats to test tubes and name plaques, never lets us forget that it is a private company with rights not only over its buildings and equipment but also its biological products, from stem cells and DNA sequences to human beings: subjects and scientists alike. The clones themselves are a long-term investment in a speculative, eugenic future: a future in which Leda's DNA has been isolated and harvested for its auto-immune properties and Castor's for its use as a biological weapon. Finally, the title's juxtaposition between being an "orphan" and being "in the black" suggests a dialectic of loss and gain. The orphan-clones have lost their parents, their biological history, and the legal rights to their own bodies, while Dyad, the corporation that holds the patents on their DNA, is

poised to make a profit. On a symbolic level, Neolution's eugenic imperative is to "lose" those genes considered inferior in order to "gain" evolutionary progress and, in the words of its founder, Susan Duncan, "create a more perfect being." Neolution's eugenic mission, however, is not the only one in *Orphan Black*. The series' early antagonists, the Proletheans, are working to reconcile religion with genetic engineering. Evie Cho, "the engineer," envisions a future with "maggot bots" that alter a person's DNA from within. And then, of course, there is Clone Club. By finding each other, they have "gained" a new family, a new social collectivity, and a new eugenic mission: to find the key to their biological source code so they can "lose" their monitors, cure their sterility virus, and "gain" control over their evolutionary future, both for themselves and for their "genetic derivatives" ad infinitum.[55]

Orphan Black's development of the Leda clones as fully fleshed-out, feminist characters is a dramatic departure from the ways in which clones have historically been portrayed in film and television. They are nothing like the mindless, marching, identical soldiers in *Star Wars*, the Frankensteinian products of a mad scientist's medical experiments in *The Clone Master*, or the human husks engineered to provide "spare parts" for their originals in *The Island*. Intrinsically beautiful, effortlessly likeable, and vastly different from one another, *Orphan Black'*s Leda clones, or "Clone Club" as they call themselves, are the series' chief protagonists who introduce us to Dyad, Neolution,

[55] The phrase "genetic derivatives" will become significant later in this chapter, as it is used in *Orphan Black* to refer to Dyad's control over any children conceived—either naturally or aritificially—from the Leda clones. It is used to refer both to clones of clones (like Charlotte) and to the natural children of Sarah and Helena (the two Ledas who are mysteriously immune to the sterility concept). For instance, Sarah's natural daughter, Kira, is referred to as a "genetic derivative" of a Leda clone and is therefore considered the patented property of Dyad, even though she is not herself a clone.

cDNA, and maggot bots, providing the identical eyes through which we interpret their genetically-enhanced world—a world not so far removed from our own. As Clone Club expands exponentially throughout the seasons, we meet an array of different personas behind those familiar eyes. From Alison, the pill-popping housewife, to Tony the transgender Lothario, the Ledas are as different as they are similar. But it is twin clones Sarah and Helena's biological immunity to the sterility sequence that attracts the most attention and, quite likely, holds the most eugenic promise. By virtue of their position as both the patented, biological products of Neolution—and, now, Neolution's primary combatants—Clone Club can be neither for nor against what I refer to as "new eugenics." They occupy a complex position: their continued survival depends, at once, upon dismantling Neolution's corporate infrastructure *and* keeping its secret in the form of their own life-giving source codes.

It is this neoliberal economic imperative, diffuse, multi-national network of control, and speculative investment in a biologically-engineered future that codify *Orphan Black* as a twenty-first century genetic sci-fi drama and connect it with the other shows of this period. In *Helix*, the human immortals behind the Illaria Corporation and its subsidiaries use the Narvik virus to steer human evolution while publicly claiming "We at Illaria are committed to applying science and our global resources to improving the health and well-being of people around the world." The scientists in *Humans* combine synthetic computer base code and human DNA to engineer synth-human hybrids that are then sold as commodities by Persona Synthetics. And in *ReGenesis*, the multi-national organization NorBAC uses genetic engineering to combat bioterrorist threats, creating its own host of bioweapons in the process. These new trends in genetic sci-fi drama illustrate

that while the ideological lineage of the eugenics movement has reappeared with the advent of genetic engineering, many of the differences between "old" and "new" eugenics stem from divergences in thought and policy between progressivism and neoliberalism. The neoliberal revolution that began in the early 1980s, associated with Reaganism in the United States and Thatcherism in the United Kingdom, takes a laissez-faire, capitalist approach to economics and governmentality in which control of financial factors is transferred from the state and the public sector to individual, for-profit corporations in the private sphere. In the broadest sense, Laurie Ouellette contends, neoliberalism is a "a troubling worldview that promotes the 'free' market as the best way to organize every dimension of social life" wherein a few private interest groups control a plurality of social life in order to maximize individual profit (233). Under neoliberalism, the welfare state—which once offered substantial governmental support for public education, health care, and social secruity while regulating big businesses through price controls, unionization, and worker protections— has been systematically dismantled through decreased spending on social services and economic deregulation. In its place is a free-market model that operates on the belief that the market will regulate itself so free enterprise should be liberated from any sanctions imposed by the state. The Progressive belief in social collectivism and the public good, formalized in the Rooseveltian promise that the government will assist "the least among us," has given way to an ethos of personal responsibility and the individual profit motive. The corporate monopolies of the neoliberal era are not, however, analogous to the Fordist-style factories of decades past, which followed a Keynesian model by maintaining an institutional reserve and safeguarding against fluctuations in financial capital. They are, instead, largely

development and technology companies, which, according to Michel Aglietta and Regis Breton, rely on economies of innovation, scope, and the ability to remain ahead of the curve (433). Contemporary neoliberalism adheres to the logic of financialization, the fractal curve, perpetual crisis, and a post-Fordist model of production in which accumulation strategies and profits are projected into a speculative future. With the growing convergence between neoliberalism and the life sciences, life itself is now subject to the logic of capital accumulation. In *Orphan Black,* overcoming the economic and ecological limits associated with a Fordist system of production takes the form of ownership over the clones' patented source codes and thus the ability to control their "surplus life."

The Cold River Institute, 1918

In spite of its future-oriented genetic projects, *Orphan Black* does not locate its eugenical society in an ahistorical future world like *Blade Runner*, *Gattaca, Twelve Monkeys,* and most of the other sci-fi dramas of the neoliberal era. *Orphan Black* is set in the present—a present that sharply recalls our human past while also choosing which eugenic movement to sew its own roots into. Neolution, the multi-national cabal which steers the *Orphan Black* universe, does not begin in the 1930s or 1940s, nor does it recount any involvement in World War II. Instead, Neolution's birth is marked by the founding of its first subsidiary company—the Cold River Institute—in 1918, the same year as the theater takeover in St. Paul for the premiere of *The End of the Road*. Blending fiction with reality, *Orphan Black* uses a combination of televisual techniques, narrative strategies, and the merging of historical media records like photographs with prop

artificats to manipulate history and create its own genealogy of eugenics: a genealogy that holds generative possibilities for our present.

As Neolution's history is unearthed in the episode "To Hound Nature in her Wanderings," a few things remain consistent across time: female leadership, a strict reliance on the expanding, capitalist economy, and the development of eugenic consciousness through ideological co-optation. In contradiction to the cultural norm of referring to nature as "her" and science as "him," *Orphan Black* uses female pronouns to refer to both nature and her scientific engineers: all creation is feminized, be it natural or man-made. Since 1918, Neolution has been run primarily by female scientists with the help of their husbands, colleagues, and subordinates. It also takes a group of women to follow the evidence and expose Neolution's origins: Sarah, Cosima, and the female archivist who, her facial expressions suggest, is more deeply involved than she is letting on. In the episode's opening sequence, Sarah chases the clues in an old photograph of the Duncans labeled "Project Leda 1977" to a church basement where the records of the Cold River Institute are kept. The name "Cold River" is likely a reference to the real-world Eugenics Record Office which was founded in Cold Spring Harbor, New York, in 1904 and officially became an ancillary part of the Carnegie Institution of Science in 1918. Walking with the archivist past the Church's stained glass windows and down into the archives, Sarah reads the dates on the towering stacks of cardboard boxes: "1910, 1920." Quipping at Sarah's naiveté, the archivist informs her: "The Institute was active a lot longer than people think." It is a veiled reference to the extra-diegetic cultural imaginary in which we seem to have forgotten the early history of eugenics, believing it began with the rise of Nazism in 1930's Germany rather than in the Anglophone world at the turn of

the twentieth century. By tucking these records away in the Church basement, *Orphan Black* calls attention to early eugenic science's uneasy intersection with religiously-motivated Progressive Era reforms, such as the moral purity and temperance movements. This eugenic legacy is also deeply entrenched in the present conjuncture between scientific advancement and Christian theology, such as how the religious imperative to "maximize life" has been re-written under neoliberalism as the drive to maximize profit. The scene's mise-en-scéne thus attempts to bridge the temporal gap between the Progressive Era and the present by emphasizing this uneasy mélange of forces—technology, science, and religion—which produced an early eugenics movement that believed scientific methods could purify the human genome. This legacy is resurrected and brought to light—literally, by Sarah's flashlight—as she shines it on each successive relic. There are registry books with loose bindings, thin journals printed on linotype machines, and a stack of black-and-white photographs: a smiling infant labeled "The Most Perfect Baby," a child with physical deformities, and several of various body parts infected with venereal disease. These actual photographs from the 1910s are interchangeable with those held in the real Eugenics Records Office and look almost like still-frame versions of the raw footage shown in *The End of the Road* and *Fit to Win*. Strewn about Sarah in a semi-circle on the cement floor, these real-world mementos blend almost imperceptibly with the fictional history of the Duncans. A prop newspaper, given away only by the subtle marks of the word processor, reads: "Cold River Institute Hosts Visiting Cambridge Delegation." Above the text floats a photograph of four of its members standing in front of the Institute. On the far left is Ethan Duncan, one of the engineers behind Project Leda. In another faux newspaper clipping reporting on a

laboratory fire in the mid-1980s are headshots of Leda's husband-wife team with the caption: "Project spearheaded by Professors Susan and Ethan Duncan." Project Leda, Sarah realizes, was founded at Cold River in 1977. The more intently she gazes at each relic, the louder the harsh mechanical sounds become. By appearing to play in Sarah's head as she browses—much like a digital entity scanning, computing, and storing information—*Orphan Black* presents Sarah as the antithesis of the pure, human genome. Incorporating these sounds into an act of looking that is typically natural and silent, *Orphan Black* highlights Sarah's inorganic origins—origins which seem more in line with our current investment in for-profit digital technology and nanobiology than the Progressives' investment in using science to achieve human perfection. Sarah thus stands out as a transhuman product amongst these religiously motivated modern artifacts that constitute her pre-history.

The next relic Sarah finds, a scrapbook with the name "Cold River Breeding Society" embroidered on its cover, holds another series of medical photographs. This time, they are stills of doctors, presumably the Duncans and their team, performing operations in full surgical garb. What is more, the "Cold River Breeding Society" appears to be a correlative for the real-world American Eugenics Society (AES), founded by several prominent scientists, economists, and philosophers, including Frederick Osborn, who, like the Duncans, did his postgraduate work at Cambridge. An anthropologist whose research focused on the heritability of intelligence, Osborn helped establish the Office of Population Research at Princeton. It was there, during the Progressive Era, that Osborn's involvement with eugenics began. In the late 1920s, Osborn was the first to point out that, although blacks as a whole scored lower than whites on Army intelligence

tests, blacks from urban norther states scored higher than whites from rural southern states. From this statistical data, he concluded that cultural factors, not race, had a stronger influence on IQ and thus advocated for the implementation of eugenic protocols *within* groups instead of *between* groups.[56] It is this philosophy which drove him to try and rebuild and refocus the American eugenics movement after World War II. He was intent on shifting the movement away from what the progressives themselves referred to as "negative eugenic practices" and back towards "positive eugenic practices."[57] These efforts led the American Philosophical Society to declare Osborn "the respectable face of eugenic research in the post-war period" ("Fredrick Henry Osborn Papers"). In fact, it is Osborn himself who the Critical Art Ensemble credits with envisioning how eugenics would become a nearly invisible, mainstream part of the health care industry several decades later.

In the 1930s, Osborn argued that "the public would never accept eugenics under militarized directives" like those issued during both world wars (Critical Art Ensemble 121) or through military brochures and motion pictures like *The End of the Road* and *Fit to Win.* Instead, ample "time must be allowed for eugenic consciousness to develop in the population. The public would have to come to eugenics rather than vice versa" (121). The

[56] As discussed in Chapter 1, the Progressive Era eugenicists ascribed to a Lamarkian view of genetic interhitance and believed that cultural and economic factors—including poverty, education, and achievement—could be passed down genetically from one generation to the next. It is for this reason that eugenicists, including Frederick Osborn, believed that both selective breeding and social enrichment programs were necessary for eugenic progress.

[57] As defined by American Association of Social Hygiene President Charles Eliot, "positive eugenics" advocates the improvement of genetic traits by implementing educational and social programs that "promote higher rates of reproduction" for those with desirable traits (selective breeding, preventing birth defects, etc.), while negative eugenics seeks to "reduce the rate of reproduction" for those with undesirable traits (forced sterilization, euthanasia, etc.). See: Eliot, Charles. "American Social Hygiene Association." *Social Hygiene* 1.1 (1914): 1-5.

two primary social structures Osborn believed would bring about eugenic consciousness were the rise of the consumer economy and the nuclear family. Once health care and medical intervention become "just another business component of the economy," eugenic practices can be offered alongside any other "commodity under the legitimized authority of medical institutions" (122). Since the nuclear family "is concerned with the 'quality' of reproduction," and quality "in this case is dictated by capitalist demands," giving one's child a genetic edge will simply become another way of ensuring that parents can "provide their children with these 'advantages'" and their children, in turn, "will give society [their] best economic performance. In this thoroughly rationalized situation, *quality of life is equated with economic performance*" and eugenic participation is re-inscribed as "a sign of benevolence. To be sure, once eugenics is perceived as a means to empower the child and the parent, it loses its monstrous overtones, and becomes another part of everyday life medical procedure" (122-3). Osborn's predictions are in fact being borne out in the twenty-first century. Eugenic consciousness is becoming a part of everyday life in the form of genetic screening, gene therapy, genius sperm banks, egg donor regulations, preimplantation genetic diagnosis, and embryo selection. These eugenic mechanisms are emerging "out of the rationalized reproductive process which reflects the ideological values of the social context in which the process occurs," namely, the consumer economy, where "people's value is determined by their economic potential" (135). In the contemporary era, the Critical Art Ensemble argues, our concern is not for "the 'happy' (non-rational) but the 'productive' (rational) child," since "rational patterns of production and consumption in the economy of desire are presented as determinants" (128). The post-1980s individualistic, privatized, and deregulated

consumer economy is a marked departure from the welfare state of the early twentieth century that supported government-funded eugenic programs. In the neoliberal era, eugenic directives are no longer about engendering standardization, uniformity, or social collectivity. The days of school boys and girls filing into perfect rows in *Our Children* to follow the nurse in hygiene drills are gone. Instead, eugenics has taken the form of parental free choice, where prospective parents are encouraged to undergo genetic screening and either create or select embryos with the genetic traits they believe will give their child the best social and economic advantages. Despite these notable, procedural differences, both eugenic programs rely on a common ideological foundation: Enlightenment rationality and the value of production wherein "reason itself [is] merely an aid to the all-encompassing economic apparatus" (Adorno and Horkheimer 23). Under neoliberalism, the value of the productive child is simply understood as personal (an extension of the parents) rather than social (contributions parents make on behalf of the nation). It is only a matter of time until more invasive forms of genetic enhancements become available.

In envisioning how the next wave of eugenics will take hold in America, the Critical Art Ensemble appears to hold two contrary views. On the one hand, they assert that "eugenic consciousness [does] not have to be aggressively and intentionally micro-manufactured; instead, it [will] develop as an emergent property as capitalist economy increases in complexity" (121) and, on the other, that "the goal for eugenicists . . . [is] finding a way to import the spirit of voluntarism associated with interventions designed to maintain life into those used to create it" (120). It cannot be both. It cannot be that eugenicists need only wait for the consumer economy to catch up with them *and* that they

must programmatically exploit the public's "spirit of voluntarism" to sell the process of "creating life" as the next phase in parental free choice. Certainly, Osborn was right that the neoliberal economy and the nuclear family are key components of the next eugenic wave, but they alone cannot engender a "silent flesh revolution" (137). Eugenics' proponents must also sway public opinion in their favor by "intentionally micro-manufacturing" the desirability of the genetically engineered child and its social and economic advantages. In fact, it is precisely this task Neolution undertakes in *Orphan Black*.

In the series, Neolution's eugenical mission relies on two, simultaneous operations: publicly, it supports its corporate subsidiaries in running traditional biomedical research (adult stem cell therapies, drug trials) and privately it hosts a warehouse of covert projects including Leda, Castor, and Brightborn. The public arm of Neolution is designed to slowly engender public eugenic consciousness while secretly moving forward with increasingly bold, human evolutionary enhancements. Presumably, by the time these scientific methods and developments are legalized and made public, mainstream society will be in ideological alignment with them and Neolution's subsidiaries will be the first to make it to market. This unbridled dedication to modern science and its programmatic strategy of indoctrination also suggest that, since the beginning, Neolution has operated according to the beliefs of early eugenicists, like Irving Fisher, who declared that "once we admit that it is proper for the instructed classes to give tuition to the uninstructed, we begin to see an almost boundless vista for possible human betterment" (Searle 25-6). Certainly, this lingering distinction between the "instructed" and the "uninstructed" still bears a trace of its earlier associations with race

and class. And, despite *Orphan Black*'s discernable feminist overtones, it falls far shorter in its attempt to oviate eugenics' entangled history with racism and classism by presenting an (impossible) "postracial" genetic world.

Orphan Black's clones—it's "master race"—are noticeably all white as are the "instructed" scientists who engineer them with one exception: Dr. Evie Cho, the Asian-American leader of Project Brightborn. Rather than a progressive departure from eugenics' early twentieth century associations with white supremacy, Dr. Cho fulfulls the stereotype of the Asian brainiac and model minority who, as I will explain shortly, acts as a coporate mouuthpoice for using genetic technologies to reinforce neoliberal, heteronormative family values. There are only a few other recurring characters of color in *Orphan Black*, namely the gestational mother Amelia who carried twins Sarah and Helena, Alison's two adopted children (Gemma and Oscar), and Beth's police-detective partner Aruthur Bell. Like Dr. Cho, each of them ascribes to a familiar and reductive cultural narrative. Amelia, a black woman and recent immigrant who answered the Duncans' ad to help them conceive a child, is an onscreen embodiment (or surrogate) for the real-world immigrants and other women of color who are replacing their wealthier, white counterparts as the producers of reproductive labor both as domestic workers in the home and as gestational surrogates for the reproduction of white families. In *Brown Bodies, White Babies: The Politics of Cross-Racial Surrogacy*, Laura Harrison argues that new reproductive technologies are being deployed to serve the interests of the dominant class, while exploiting poor women and women of color whose own reproductive desires have been historically thwarted through eugenic sterilization or vilified through the racist narrative of the single mother "welfare queen." Instead of

interrogating Amelia's fraught position, *Orhpan Black* enacts further violence on her body. In her final episode "Endless Forms Most Beautiful" we learn that, during her preganany, Amelia suspected the Duncans were using her for some kind of larger, medical experiment (hardly surprising given the biomedical industry's long history of failing to obtain participants' informed consent). To protect the babies, she delivered Helena and Sarah in secret and gave one to the church and one to the state, at great risk to her own safety. Unfortunately, Amelia's plan does not play out as intended. Helena suffers horrific abuse at the hands of the covent's nuns and, upon learning it was Amelia who gave her to the church, Helena stabs her in her now barren womb and watches her bleed out on the floor. Amelia dies staring helplessly at Helena—the woman who was once the baby she loved and risked her own life to protect. Amelia's womb is only the first of many bloody, diseased, or surgically altered wombs in *Orphan Black* but, unlike those of the Ledas which we will see later, there is no effort to intervene on behalf of women, like Amelia, whose reproductive organs have been used by Dyad to carry the clones without their informed consent. Even as the series comes to revolve around the Ledas' quest to regain their fertility, it fails to include or reflect upon the other women (either diegetic or extra-diegetic) whose reproduction is disproporionatley affected by the demands of neoliberal capital.

Alison's black adopted children, Gemma and Oscar, rarely speak but are frequently shown playing in the background. They function in *Orphan Black* more like props used to flesh out Alison's character than as characters in their own right. Each Leda clone has her niche and Alison is the series' devoted mother. She is what Raka Shome describes in "'Global Motherhood': The Transnational Intimacies of White Femininity"

as the good, Western global mother.[58] It has become "fashionable to see white Western women saving, rescuing, or adopting international children from underprivileged parts of the world [and domestic children of color from poor families], and rearticulating them through *familial* frameworks that re-center white Western… heterosexual kinship logics" (389). Much like bell hooks' notion of "eating the other" through the uncritical consumption of 'trendy' cultural artifacts by the so-called liberal and open-minded, the de-historicized incorporation of children of other nationalities, races, or cultures into one's family is another form of consumption that threatens to make us feel good about ourselves for "helping the other" at the expense of masking the systemic inequities that have exacerbated domestic racial and economic inequality as well as third world poverty, hunger, political instability, and inadequate medical care. For, once the white global mother becomes the humanitarian rescuer of the impoverished, non-white child, any consideration of how systemic political, economic, and social practices have contributed to to the dire conditions in which the child was born is cut off. It is usurped by the feel good discourse of love and affection for the non-white child. It is for this reason that Alison and the discourse of global motherhood she invokes must be contextualized within the history of Western colonialism, the unequal flows of capital, medical imperialism, and eugenics. As Shome argues: "When we see images of white women caring for children of other nations [or races]… absorbing these children into the affective vectors of their own kinship relations, we need to recognize that underlying such discourses is *a struggle over maternities and modernities.* The white Western mother can stand in as the

[58] In *Orphan Black*, it is unclear whether Gemma and Oscar are the product of a domestic (Canadian) adoption or an international adoption.

global mother only by erasing the non-white mother" (390-1). In *Orphan Black*, no mention is ever made of Gemma or Oscar's birth mothers or families, or the circumstances that led to their adoption. We can only surmise that they may be a product of what Dorothy Roberts refers to as "the racial disparity in the foster care [and adoptable] population …as child protection authorities remove grossly disproportionate numbers of black children from their homes" and black children are more readily available for adoption both nationally and internationally ("Race, Gender, and Genetic Technologies" 797). The series works to disrupt the notion that biology makes a family, or biology is destiny, but in so doing it reifies other systemic inequalities, including race and class, on which the neoliberal infrastructure of genetic and reproductive technologies depend.

Arthur Bell, Beth's partner on the police force, is frequently called upon by the Ledas who give him just enough information in order to elicit his cooperation. In other words, he becomes the easily manipuable cop who suspects something is up, but goes along because of his loyalty to and affection for Beth (and, later, Sarah). What Arthur, Amelia, Gemma, and Oscar all have in common is that they are some of the series' "uninstructed" characters or, perhaps more accurately, the *unaware*. They are the oustsiders: neither the genetic engineers running the various branchances of Neolution nor Neolution's genetic products. They are simply the human tools who have been enlisted either by Neolution or Clone Club: Amelia is the company's genetic surrogate, Arthur is the Ledas' muscle and police badge, and Gemma and Oscar function as diversions, used to help the Ledas escape capture by Dyad. Even as they perform these roles, they remain oblivious to either side's ultimate eugenic goals. In fact, their lack of

conscious knowledge about Neolution is reinforced by the title of the episode in which we first meet Amelia: "Unconsicous Selection." These minor characters have been "selected" and used without their consent to help fulfill the eugenic objectives of the "instructed" class.

While it is clear in *Orphan Black* who the pawns are, the identity of the "instructed" group is less obvious. With the constant turnabouts between the different branches of Neolution and their Clone Club combatants, the distinction between which group is "instructed"—and which group is hoplessly misguided — is tenuous at best. Throughout the series, the fight over genetic engineering takes place not between an educated elite and the uneducated masses, but among various factions of scientists—among Dr. Cho, Dr. Cormier, Dr. Niehaus, Dr. Leekie, Dr. Duncan, and others. As a result, the bioethical arguments around gene editing, "clone" DNA, and eugenics become just as complex, diffuse, and intertwined as the networks of power in which they are embedded. And, as I will address later in this chapter, it is through these battles among scientific factions that *Orphan Black* effectively plays eugenics against itself. In fact, through the factions' frequent bioethical confrontations, the Progressive Era religious purity movement is reignited, not in the form of sexual purity, morality, or a virtuous character, but in the form of the purity of the human genome.

While *Orphan Black* favors moral and intellectual relativity, Neolution itself is less diplomatic, asserting that "the uninstructed" are those who doggedly believe in the purity of the naturally born human over the human who can be engineered without hereditary diseases and other risk factors. Like the early intelligentsia, Neolution believes its expertise in the study of human genetics uniquely qualifies it to direct human

evolution. Submission to this eugenic vision is not wrought by force but, rather, by ideological co-optation and adherence to the Enlightenment principles of scientific rationality, productivity, and social utility. Since its inception, eugenics has been part of the complex social, political, and economic program aimed at transforming the lower levels of society from a combative "them" into a cooperative "us." Neolution's long-term project is to gradually bring about eugenic consciousness by appealing to the public's "spirit of volunteerism," crystalized in the title of Dr. Leekie's book *Neolution: The New Science of Self-Directed Evolution*, a title which closely recalls—yet inverts the thesis of—Foucault's seminar *Technologies of the Self*, which he was developing as a book at the time of his death.[59] In a troubling misappropriation of Foucault's assertion that "technologies of the self" are the disciplinary practices through which subjects constitute themselves in and through systems of power by policing their "selves" in society, Dr. Leekie makes the quintessentially neoliberal argument that we can use technological means to constitute our desired "self" and thus "direct" human evolution. As a capitalist product in itself, Dr. Leekie's book provides another revenue stream that can be directed back and reinvested in Neolution's subsidiary companies. However, Dr. Leekie's book and its misappropriation of Foucault are not original; Dr. Leekie is borrowing not only from Foucault but also from another media source and another geneticist. His book talk, which he delivers at the University of Minnesota in the episode "Nature Under Constraint and Vexed," is plagiarized—nearly word for word—from the 2011 TED Talk of Dr. Harvey Fineberg, the real-world proponent of what he calls "Neo-Evolution." Far from

[59] Foucault's lectures and writings on the subject were collected and published posthumously as *Technologies of the Self* in 1988.

hiding this piracy, *Orphan Black* publicizes it with a direct link to Dr. Fineberg's TED Talk on Dyad's corporate website—a website which exists both in the show and on our real-world internet. Through its intermediality, *Orphan Black* uses its televisual form and narrative content to appropriate and respond to other eugenic media, both past and present, thereby creating a media genetics that develops alongside its foray into genetic science. What is more, just as the character Dr. Leekie bears external allusions to Aldous Huxley, Dr. Henry Fineberg, and Dr. Louis Leakey, within the show, he is a figurehead for Neolution's leadership and his motto of "self-directed evolution" is merely a fabrication used to garner popular support for Susan Duncan's specific evolutionary plan. It purports to offer followers the capacity for self-direction but, in fact, Neolution is secretly steering evolution in its own direction—one it is borrowing from real-world antecedents. One way *Orphan Black* does this is through Project Brightborn, developed by Dr. Evie Cho, CEO of the Brightborn Group, another Neolution subsidiary.

The secret arm of a private in vitro fertilization clinic, Project Brightborn is only available by word of mouth, spread from one wealthy infertile couple to another. For a substantial fee, these couples are promised biological children who will be "bright born." The term itself appeals to the new intelligentsia in two ways: not only will the children themselves be born "bright," but by choosing genetic enhancements for their children, the parents themselves are making a "bright" decision. The name is also a likely reference to the real world group, The Brights, a radical atheist movement that describes itself as "illuminating and elevating the naturalistic worlview" (The Brights). In fact, Project Brightborn's logo and literature are all done in white and blue, The Brights' familiar chromatic signature. Founded in 2003 by husband-wife pair Paul Geisert and Mynga

Futrell, The Brights are united by their critique of the ways in which many existing public policies are rooted in religious doctorine and, instead, advocate a "scientocracy," or the practice of basing public poliices on the best available scientific evidence. They believe that this adherence to scientific principles will provide the best possible foundation for a humane society (The Brights). While they have made no claim that they are intellectually superior, Dinesh D'Souza writes in *The Wall Street Journal* that this is implied in the name itself when they ask "no longer [to] be called 'atheists.' Rather, they want to be called 'brights'" ("Not So Bright").

Unlike The Brights, Project Brightborn openly asserts that relying on science to guide both public policy and human evolution is a "bright" choice. Walking into the clinic's reception area in a couture floral dress rather than her usual white lab coat in "Human Raw Material," Dr. Evie Cho visually blends in with the prospective parents. She sits down in one of the oversized chairs and crosses her legs, mirroring the body language of the other women around her. Beginning the private informational session with a personal story, she appeals to the parents' desire to conceive a child who will begin life with a "bright" start. "Nature can be cruel," she explains:

> When my parents rolled their genetic dice, a single mutation turned me into the girl in the plastic bubble. My immune system was severely compromised, a condition known as SCID…The doctors told us this was my life. But the Chos are a fierce and stubborn family. My parents lobbied, researched, and mortgaged our home to keep going. In 1994, I entered an experimental gene therapy trial. By the time I graduated from

> bio-engineering, I was in full remission. And as an engineer, when I see a flaw, I want to fix it.

Through her careful juxtaposition, Dr. Cho vilifies nature as "cruel" and risky while presenting gene therapy as benevolent and life-saving. In fact, not only does she rid eugenics of its "monstrous overtones" by presenting it as "a means to empower the child and the parent," but she recasts nature as the monstrous force, prone to "mutations" and "flaws." By making her "the girl in the plastic bubble," nature is the force that prevented her from living a "natural" life. While eugenics has long been understood as secular, Dr. Cho imbues it with theological elements as she suggests that the scientist's intelligent design (gene therapy) has saved her life. Notably, Dr. Cho's brand of theology is not Judeo-Christian but, rather, reflects the merger of the biological sciences with the free market economy. Just as the state has been replaced by the corporation, so God in the twenty-first century has largely given way to the God of Commerce.

This is evident in how Dr. Cho's parents' "fierce" efforts to save her life constitute a quintessentially neoliberal solution: the integration of gene therapy (the life sciences), the nuclear family (the private sphere), and economic investment (where "mortgage" = debt/"experimental trial" = speculation). Hope here lies not in governmental assistance or the goodwill of the social collective but, rather, in the private investment of the nuclear family. With this story, she also implicitly asks her audience of prospective parents how far they would go to save their own children. Why would they "roll the genetic dice" if they could guarantee a healthy child with a little economic investment? It is precisely this opportunity Dr. Cho offers at the end of her speech. Looking around the room at her attentive audience, she promises: "Our exclusive

technology identifies and enhances your most viable embryos, making the world a better place, one baby at a time. . . . Your child will thank you." Her eugenic promise is cloaked in the utopian language of parental free choice and inevitable evolutionary progress. Of course, the parents are kept largely in the dark about how these "enhancements" are made; they are simply offered the chance to give their child a "bright" start. Substantiating Foucault's argument that the regulation of populations is "applied first, with the greatest intensity, in the economically privileged and politically dominant classes" (120), the wealthy parents assembled at the clinic are the first to experiment with these enhancements on their *own* children. For now, Project Brightborn is only available to those families who can afford the fees and are willing to sign discretionary paperwork. Neolution's objective, however, is for genetic enhancements to slowly trickle down the classes, just as the mechanisms of population regulation Foucault identifies in *The History of Sexuality* have made their way throughout the classes over the centuries. Once these enhancements can be shown to give children distinct genetic advantages, Brightborn's services will emerge from the shadows and, as the Critical Art Ensemble suggests, become "another part of everyday life medical procedure" (123).

After listening to Dr. Cho's speech, the prospective parents are given the opportunity to have a Q & A session with one of the clinic's new moms, who is holding her very own Brightborn baby. While the mom is Asian, her baby— like all of the babies in the clinic's ubiquitious signage and literature— is white with light hair and blue eyes. Project Brightborn's image of the perfect baby is not unique to *Orphan Black* but, rather, conforms to the real-life brochures showing the success of new reproductive technologies which, Dorothy Roberts argues in "Gender, Race, and Genetic Technologies," always

depcict “white babies, usually with blond hair and blue eyes, as if to highlight their racial superiority” (786). In fact, when *The New York Times* featured a four-article series titled “The Fertility Market” in January 1996, Roberts recounts that “the front page displayed a photograph of the director of a fertility clinic surrounded by seven white children conceived there” (786). Similarly, while both the parents and prospective parents assembled at the Brightborn Clinic are of various races and ethnities, every image of a child that we see—and we see more than seven—are white with light hair and blue eyes. It is in this way that even Evie Cho, who the Neolutionists respectuflly refer to as “the engineer,” is reduced to a position of reproductive labor; she is the engineer”or the scientific mind behind the hundreds of white, blue-eyed Brightborn babies who will complete these wealthy, nuclear families. But she is neither a mother nor a donor herself; her genes are not those desired by the parents. As she clearly tells us in her speech, her genes are defective— she was “the girl in the plastic bubble.” Her contribution to Project Brightborn is to engineer “defective” genes, like her own, out of the human population and to replace them with better genes—genes which, presumably, produce white, blue-eyed babies.

Project Brightborn, along with Project Leda, has both its ideological and biomedical roots in the Cold River Institute, in those “Perfect Baby” contests of the Progressive Era, and those photographs of surgical operations performed in the Duncans’ lab in the 1970s and 1980s. Returning to Sarah’s archival investigation in “To Hound Nature in her Wanderings,” she gently places the black-and-white photographs back in the box, returns it to the shelf, and takes down another carton—this one containing microfiche slides. Selecting one, she slips it into an old projector, resting on a nearby

desk. A dusty, dented, oversized piece of brown plastic, the projector seems so out of place alongside the high-definition microscopes, biometric scanning devices, and gene guns that constitute *Orphan Black*'s characteristic mise-en-scéne. After scrolling through a few slides, Sarah stops on an article entitled "The Progress of Eugenic Sterilization" by Attila Barazacka. In reality, the text of the essay is taken from an article of the same name by Paul Popenor, published in *The Journal of Heredity* in 1934. This deliberate, anachronistic reference is an indication of the divergent interests of the eugenics movement in the 1910s and 1930s. Forced sterilization, as I discussed in Chapter One, was not widespread during the Progressive Era and only became commonplace following the Supreme Court's decision in *Buck v. Bell* (1927) which legalized the sterilization of patients in a Virginia home for the mentally ill. However, this misappropriation serves to connect the early eugenic use of sterilization to the sterility sequence Susan Duncan embeds in the clones' synthetic DNA. It prevents the clones from having their own, naturally-conceived children (i.e., reproducing "for free") so the company can control supply and demand. As *Orphan Black* re-engineers its eugenical past in this scene, it uses the archivist's sarcastic emphasis on the word "history" and the easy manipulability of the media image—of these prop artifacts—to reveal the story behind Neolution's experiments from the vantage point of our current capital and political investments.

As the scene continues, Sarah calls Cosima on the phone to report her findings about Cold River: "Good intentions, bad science," she quips, referring both to the article on eugenic sterilization and the photographs of the Duncans and their colleagues performing unknown operations on unidentifiable patients. "Sound familiar?" Cosima asks, rhetorically. "Cold River is like the perfect ideological breeding ground for a

nature/nature cloning fiasco." Linking their own biological history to both the eugenical baby contests and the sterilization of the so-called unfit, the clones are caught in a dizzying contradiction. They are, at once, the ideal *and* the monster. "Science is what scientists do," Cosima shrugs. "Nobody's got any idea. We're just poking at things with sticks." The limitations of science and our imperfect understanding of heredity, genetics, and the human body (as well as the implications of tampering with them) have shrouded the development of eugenic science since the very beginning, since Edith Ellis's impassioned 1914 plea not to pass eugenic laws before our understanding of science was more profound. Despite Ellis's cautions, however, eugenic laws are on the rise in the 2010s, and it is our high courts that are charged with the Herculean task of interpreting them and ruling on their constitutionality.

Patenting the Human

The neoliberal era's ethos of individualism, underlying corporate profit motive, and drive to protect proprietary information has shaped the legal battle concerning eugenic legislation as it comes to center on the intellectual property patent over human genetic material. The new eugenic wave is informed by the Progressives' commitment to Enlightenment rationality and production, but not their vision of science as collectively produced for the public good. In the 1910s and 1920s, the eugenics movement was sponsored by government initiatives including free educational programs, informational brochures, motion pictures such as the *Science of Life* series, and the WWI hygiene melodramas. Scientists openly published their findings in *The Journal of Heredity, Eugenics: A Journal of Race Betterment, The Eugenics Review*, and popular medical journals, encouraging both professionals and laymen to join them in the fight to

maximize human "life itself." Entrenched in a Christian theological understanding of life in which we are put on Earth by God to fulfill a particular purpose, the idea of "maximizing life" has been touted as inherently good or valuable. But why should life be maximized? When we are told to maximize life, that directive is usually intertwined with a specific objective: to increase the rate of reproduction of the "fit," to supply the nation with more workers, to augment worker productivity in order to add value to the corporation, and so on. Nowhere is this more evident than in how the drive to maximize life has re-emerged under capitalism as the imperative to maximize profit. And, with the merging of capitalism and the life sciences in the twenty-first century, the ability to maximize life has become intertwined with maximizing profit in the form of personal success, monetary gain, and patented source codes.

Our understanding of "life itself" is at the center of a Foucauldian understanding of modern biopolitics, as well as postmodern bioethical concerns over genetic engineering and biological patent law. In *Society Must Be Defended*, Foucault argues that contemporary politics challenges the nature of "life itself" as the modern era brings with it "the emerging of something that is no longer an anatomo-politics of the human body, but . . . a 'biopolitics' of the human race" in which the nation-state exercises power over "a set of processes such as the ratio of births to deaths, the rate of reproduction, the fertility of a population . . . and so on—together with a whole series of related economic and political problems" (243). When the goal is to maximize "life itself," human history has shown that extreme measures, including racial genocide, suddenly become thinkable. The transition to neoliberalism also entails another shift: we are no longer dealing with what Foucault calls "the life of the nation" or "bioregulation by the State" (250) but the

life of the human race in a global context, in which control is exercised by a diffuse web of multi-national power networks. In *Orphan Black*, for instance, the nation-state is replaced by Neolution, the private international cabal which reflects the global nature of the twenty-first century political economy. Foucault's notion of "race war" also becomes a truly "genealogical" genocide directed at the genes themselves: the erasure of so-called "deleterious" genes and the introduction of synthetic DNA "enhancements." This kind of genetic engineering in the name of "life itself" is incorporated into *Orphan Black* through the clones' synthetic genomes which have been patented by the Dyad Institute. In the series, the intellectual property patent emerges as the neoliberal, genetically-imposed prison of the control society. And, by making the Ledas' and Castors' DNA visible through computer graphics, animation, and bioinformatic code, *Orphan Black* uses aesthetic form to stage eugenic politics while illustrating how the modern legal system is structured by corporate pressures and private property rights.

From the seventeenth century through the 1980s, Foucauldian disciplinary societies maintained order by using the threat of surveillance and punishment to compel individuals to regulate themselves, adopting normalized behavior and functioning much like cogs in a machine. With the technological revolution and the economic shift to "capitalism of higher-order production" that accompanied the rise of neoliberalism, Giles Deleuze argues that forms of discipline moved beyond enclosed structures and outward, towards a more sophisticated network of entangled, diffuse, and mobile systems (6). These newer societies of control are not governed by the factory, the guard, or panoptic systems of surveillance but by "a code: the code is a password. . . . The numerical language of control is made of codes that mark access to information, or reject it. We no

longer find ourselves dealing with the mass/individual pair. Individuals have become 'dividuals,' and masses, samples, data, markets, or 'banks'" (5). The "dividual" of the control society is a "physically embodied human subject that is endlessly divisible and reducible to data representations via the modern technologies of control, like computer-based systems" (Williams 1). *Orphan Black*'s clones are quintessential twenty-first century dividuals. Engineered in the image of computer and military codes, the clones' invisible genetic sequences are materialized onscreen through computer code and consist of three components: a message, a cipher, and a key. Although the clones are patented by Dyad, the corporation lost the key in a fire in the 1980s and no longer has the ability to create new clones. While Dyad's patent covers the existing clones and their genetic "derivatives" ad infinitum, its patent over the clones' mechanism of generation is useless until they can relocate the key. *Orphan Black* thus revolves around the race between Clone Club and Neolution to obtain the key, decode the cipher, and control both the clones' genetic destinies and the future of human evolution.

Biological patenting emerges in *Orphan Black* through the juxtaposition between the public façade of the Dyad Institute, represented by Dr. Leekie and his stated project of "patenting transgenic embryonic stem cells," and the company's covert mission to steer evolution through human cloning. This requires much broader method and cDNA patents that extend to the clones' genetic "derivatives," identifiable by Dyad's "watermarks" in their DNA. In the aptly titled episode "Nature under Constraint and Vexed," we learn Dyad intends to expand its control by pursuing "the next trench of patent claims," which will further put human "nature under constraint." Entering the episode on the top floor of the Dyad Institute, an elegant, open space lined with floor-to-

ceiling windows, we find a moving mass of scientists, corporate shareholders, and private financial investors mingling as they sip champagne and sample hors d'oeuvres from silver trays. A bellowing voice over the loudspeaker commands their attention, and they assemble in front of the make-shift stage. Taking his place at the glass podium, Dr. Leekie is visually enclosed by a triptych of hexagon-shaped DNA molecules, bathed in the familiar aquamarine light that has become Dyad's chromatic signature. "I am Dr. Aldous Leekie, and it is my great pleasure to welcome you here on behalf of the entire Dyad Group of Companies." His words trigger a cross-cutting between scenes. Sarah, who has just stolen Dr. Leekie's access card, makes her way out of the cocktail party and into the stairwell, which becomes progressively darker as she descends. Over Sarah's image, Dr. Leekie's voice booms: "The *key*stone," he says, as Sarah swipes his *ke*ycard into the scanner, "of the original Dyad Institute was set here in 1918. Today, worldwide, the overwhelming majority of biotech research is funded by private capital." The film cuts from Sarah opening the stairwell's tenth floor exit door to the outer recesses of Dyad's private offices, where Paul is leading a group of Korean business men around the floor, through two closed doors and, finally, into Rachel's executive suite. Filmed from behind the floor-to-ceiling glass walls, the camera looks in from the outside as the businessmen file into Rachel's office, crowding the tight space around her desk with their bodies. As the transposition between the open, public space of the cocktail party and the cramped, private space of Rachel's office suggests, Dr. Leekie is the superficial figurehead of Dyad, while the Duncans' adopted daughter, "icy pro-clone" Rachel, is its covert director, running the institute from behind closed doors. The ruse of a male public face for a movement run by women (Rachel Duncan of Dyad, Dr. Virginia Coady of

Castor, Marion Bowles of Topside, and Susan Duncan of Neolution) is no doubt easy to pull off in a culture where men are expected to be the leaders in the financial, technology, military, and biomedical sectors. Moreover, Dr. Leekie's inviting smile, gregarious personality, and clean-cut corporate appeal make him a successful foil. His face is an integral part of *Orphan Black*'s mise-en-scéne and a synecdoche for the public side of Neolution: it is plastered on billboards, posters, TV screens, and book jackets. As stated earlier, just as Dr. Leekie is a puppet for the real leaders of Neolution, so their public motto of "self-directed evolution" is a fabrication used to garner popular support and ideological investment in Susan Duncan's very specific (and still secretive) evolutionary plan.

While Dyad hosts an elegant fundraiser to generate capital for its public projects, it is the assembled businessmen in Rachel's office, several floors below, who are providing the "private capital" for its covert projects and lobbying efforts. As Rachel explains: "The recent Supreme Court decision characterizing the legal status of natural verses synthetic DNA was the successful result of our lobbying strategies. We are proceeding with the next trench of patent claims." Airing on April 24, 2014, this is almost certainly a reference to the U.S. Supreme Court's landmark decision in *Myriad* nine months earlier, which held that synthetic DNA sequences, including cDNA, *are* patentable. With billions of dollars of revenue riding on the Supreme Court's decision, Myriad Genetics spent $550,000 in lobbying efforts in 2013, up 131% from the year before (The Center for Responsive Politics). Taking us behind closed doors and into the private negotiations and political pressures that affect judicial interpretation, *Orphan Black* demonstrates how our modern legal system is steered toward corporate privileges

and private property rights. Together, the clones' patented DNA and this ambiguous "next trench of patent claims" allow us to imagine how this new structural loophole could enable biotech companies, like Myriad, to go even further in patenting human "life itself."

In order to unpack the complex web of ideologies operating beneath *Orphan Black*'s genetic mythology, it is necessary to explore the heated ethical, political, economic, and legal debates surrounding intellectual property patents on human "life itself" in the real twenty-first century. On January 25, 2016, the front page of the *St. Thomas Lawyer* boldly proclaimed, "Playing God? Moral Arguments on Patents on Life." This evocative headline followed shortly on the heels of the *New Yorker*'s "Can We Patent Life" and *The Undisciplined'*s "Playing God('s Patent Lawyer)." These controversial feature stories have exploded in recent years, following the dramatic rise in biological patent claims filed by genetic research and pharmaceutical companies like Myriad Genetics, the Stryker Corporation, and Asper Biotech. The idea of patenting human "life itself" has not only garnered widespread media attention, but spurred a proliferation of local, appellate, and Supreme Court cases. While the popular press is fixated on the ethical implications of "Playing God" by tinkering with the human genome, the court cases instead center on the economic fallout of granting biological patents to private corporations. Patenting isolated DNA sequences creates a corporate monopoly and makes it more difficult (and more expensive) for patients, doctors, and researchers to access medically necessary diagnostic tests, pharmaceuticals, and treatments. Of course, the financial, ethical, and philosophical ramifications of patenting human life are not new. The first patent on an organic compound found in the human

body—adrenaline—was granted to Parke-Davis (a subsidiary of Pfizer) during the Progressive Era in 1911. Since then, thousands of isolated and genetically-engineered organic compounds have been accorded patent protection, particularly following the biomedical revolution of the early 1980s. The mounting fear of leaving the door open to intellectual property claims on human "life itself" prompted patent and trademark offices across the globe to voice their opposition to patenting the human being. In 1987, Donald J. Quigg, the Commissioner of Patents and Trademarks in the United States, issued a memorandum declaring that "a claim directed to or including within its scope a human being will not be considered patentable subject matter" (qtd. in Cooper 146). Quigg's statement, however, raises a fundamental question: how do we define the human being, or human "life itself"?

In *Life as Surplus*, Cooper contends that patent law in the Anglophone world has responded to this question by drawing a distinction between the human germ cell line and the human stem cell line. "Human embryonic stem cells defined as 'totipotent,'" she argues, cannot be patented since they have "the potential to develop into an entire human" while human stem cells defined as pluripotent (capable of differentiating into a multitude of different types of body cells) are patentable because they are "not equivalent to the potential person in its powers of development" (146-7). This division garnered precedent in U.S. patent law, specifically, with the granting of patent 6,200,806 on March 13, 2001, which declared James A. Thomson of the Wisconsin Alumni Research Foundation the "inventor" of a purified preparation of pluripotent human embryonic stem cells (United States Patent and Trademark Office). Discussing the significance of this particular patent, Cooper argues that while "the potential person [defined by the germ cell

line] will not be commodified. . . . [T]he surplus life of the immortalized human stem cell will enter into the circuits of patentable invention" (147). The effect of this division is that it

> equates the self-regeneration of the ES cell with the accumulation of surplus value: as the cell line is subdivided, expanded, and circulated among researchers, its intellectual value accumulates and multiplies, returning to the patent holder in the form of interest. It is this property right that decides, through the force of law, that the self-regeneration of life will coincide with the self-valorization of value, that the future materializations of the stem cell will have been appropriated even before their birth into a determinate form . . . culturing "life itself" in a state of permanent embryogenesis. (147, 149)

In other words, the value of "life itself" is projected into a speculative future where value lies not in the individual life form, but in all of the new potential life forms that may spawn from the "self-regeneration" of these embryonic stem cells, which will also belong to the patent holder.

While Cooper's application of Marx's concept of surplus value to the life sciences is convincing in its claim that surplus value can be created through the self-regeneration of life, it seems a bit naïve to claim that the division between the germ cell and stem cell lines decisively prevents "the potential person" from being commodified. It fails to take into account future evolutions in both genetic science and patent law, the latter of which is becoming increasingly skewed towards governmental deregulation and private property rights. In fact, since the publication of *Life as Surplus* in 2008, another type of

biological patent has garnered international attention, making its way to the U.S. Supreme Court in 2013. Moving away from the division between stem cell and germ cell lines which defined many of the biological patent cases in the 1990s and early 2000s, this new class of litigation involves: (1) individual genes as they are taken out of the human body, isolated, and manipulated through techniques such as gene editing, and (2) synthetic DNA sequences, such as cDNA, created through artificial gene synthesis. In the courts' published decisions, the issue of whether these isolated genes and cDNA sequences originate from genetic material found in the germ cell or stem cell line is never mentioned.

On June 13, 2013, the U.S. Supreme Court's landmark 9-0 decision in *Association for Molecular Pathology v. Myriad Genetics* hit the front page of the *New York Times.* For the justices, the central question was "whether isolated genes are 'products of nature' that may not be patented or 'human made inventions' eligible for patent protection." In their brief to the court, Myriad defends the patenting of synthetic DNA sequences by insisting they are a product of human ingenuity: they are created by man in the lab, they do not occur in nature, and they offer significant utilities in biomedical research, disease treatment, and crop engineering. Providing only a partial victory to Myriad, Associate Justice Clarence Thomas writes in his majority opinion that isolated DNA fragments or genes (including BRCA-1 and BRCA-2) cannot be patented because they are not new "compositions of matter" under § 101 of the Patent Act, but "synthetic DNA created in the laboratory . . . known as complementary DNA (cDNA)" should be patent protected because it is "unquestionably . . . something new" (2, 17). Referred to colloquially as "clone DNA," cDNA is synthesized from a messenger RNA (mRNA) template and often

used to clone eukaryotic genes (which have a nucleus) in prokaryotes (which do not). In the process, the introns (non-coding sequences) are cut from the primary RNA leaving only the extrons (coding sequences). The removal of the introns, Justice Thomas argues, makes cDNA "distinct from the DNA from which it was derived" and, therefore, "not a product of nature" (17). Assessing the impact of the *Myriad* decision on the future of biological patenting, the law firm Foley Hoag contends: "The Court's reasoning almost certainly validates the patent-eligibility of highly engineered DNAs such as those coding for humanized or chimeric antibodies" (Foley Hoag). What the Supreme Court's decision leaves ambiguous, however, is the *extent to which* a DNA sequence found in nature (including the human body) must be modified for it to be patentable. Certainly, this issue may be raised in future arbitration.

The U.S. is not the only country facing this kind of biological patent controversy. In 2015, the multi-national corporation Myriad was once again the respondent in a gene patenting case, *D'Arcy v. Myriad Genetics, Inc.,* this time heard before the High Court of Australia. Ruling in a similar fashion, the Australian court held that naturally occurring nucleic acids and molecules are clearly excluded from patent protection:

> Claims to cDNA and synthetic nucleic acids, probes and primers, and isolated interfering/inhibitory nucleic acids are "excluded where they merely replicate the genetic information of a naturally occurring organism. However, where the utility of the invention lies in genetic information that has been 'made' (e.g. created or modified by human action), these types of claims may be patentable. (1)

The biological patent landscape in Europe, regulated by the European Patent Organisation, is even more permissive. While discoveries such as the sequence of a gene are not patentable in and of themselves, "biological material, whether isolated or produced by means of a technical process, is patent eligible even if it previously occurred in nature provided its industrial application is disclosed in its patent application" (1). The *Directive of the European Parliament and of the Council of 6 July 1998 on the legal protection of biotechnological inventions* (1998), which is still in effect, states: "it should be possible to patent inventions 'including industrially applicable parts obtained in a technical manner from the human body in such a way that they can no longer be ascribed to a particular individual'" (Strathern 26). In the ensuing Parliamentary debate regarding amendments to this Directive, Willi Rothley argues that "a gene, protein, or cell in the natural state in the human body . . . must be excluded from patentability," but that if "scientific and technological expertise" can successfully remove it "from identification with a particular individual" then it should be eligible for patent protection (Strathern 26). What is at issue in this Directive is not whether the human genetic material in question is a "product of nature" or a "human made invention" per se, but, as Strathern highlights, whether the "gene, protein, or cell" can be identified "with a particular individual." If a relationship to a particular individual cannot be established, then the "gene, protein, or cell" may be eligible for patent protection. In 2016, the Supreme Court of Canada narrowly avoided ruling on gene patentability when the Children's Hospital of Eastern Ontario (CHEO) reached an out of court settlement with five patent owners concerning isolated nucleic acids and methods claims related to assessing the risk of Long QT syndrome. Taken together, these cases reveal that the primary issues concerning the

patentability of genes and cDNA are whether they have been modified by human intervention, whether they can be traced back to a specific individual, and/or whether they have a clear, industrial application. In other words, genetic materials may be considered *intellectual property* so long as they have been invested with what Marx refers to as "human labor time" (thereby differentiating them from their original source) and they have value as *commodities*.

The real-life issue of gene patenting and its attendant biological, legal, ethical, and military consequences come to a head in *Orphan Black* as the Leda clones uncover the mysteries behind their own cDNA, patented by the Dyad Institute. While certainly fictional, Dyad's intellectual property patents are driven by precisely the same systemic pressures that have cornered North American, European, and Australian patent law into creating structural loopholes that might enable the patenting of "life itself." It is through this open door that the *Orphan Black* clones come into being. Both clone lines fundamentally differ from any "particular individual" in two ways. First, because they are the product of a human chimera,[60] neither the Ledas nor the Castors are exact copies of a living person. They are each *half* of Kendall Malone, much like a naturally conceived child receives half of his or her DNA from each parent. Second, because of the insertion of the synthetic sterilization sequence and individualized ID tags, both the Castors and the Ledas have been categorically altered and are not an exact copy of either Kendall

[60] A genetic chimera is a single, living organism composed of cells from more than one zygote. In humans, genetic chimerism is the result of a merger, in utero, between two (or more) different fertilized eggs. Human chimeras can have two blood types, two different colored eyes, male and female organs, and numerous other variations in form. For more information, see: Norton, Aaron and Ozzie Zehner. "Which Half Is Mommy?: Tetragametic Chimerism and Trans-Subjectivity". *Women's Studies Quarterly*. Fall/Winter (2008): 106–127.

Malone's male or female cell line. This engineered cDNA makes them "human made inventions" that cannot be found in nature. *Orphan Black*'s clones do, however, facilitate the accumulation of surplus value and the investment in a speculative, biological future that Cooper predicts with respect to embryonic stem cells and cloned, self-replicating plants. They contain the possibility of a "self-regeneration of life [that] will coincide with the self-valorization of value," causing the "intellectual value" contained within their biology to "accumulate and multiply, returning to the patent holder in the form of interest" (147). This "interest" takes the shape of monetary gain through the clones' many industrial utilities. As we see throughout the series, their DNA can be used for biomedical research, the treatment of disease, and the creation of military grade biological weapons. The Ledas and Castors do, however, differ from the stem cell and plant lines Cooper analyzes in that they do not contain the boundless, plastic potential of embryonic stem cells nor are they copied into a pre-existing "determinate form." Through their genetic ID tags and the unforeseeable effects of epigenetics, each clone is biologically different from both the original and every other copy. They are clones *and* they maintain the "integrity of individual identities." It also these slight differences in the Ledas' and Castors' DNA that shed light on the myriad ways their patent holders have failed to predict the outcome of their human experiments.

Through *Orphan Black*'s mise-en-scéne, cinematography, and narrative, the clones' synthetic DNA sequences look and operate like computer and military codes. They become a visual manifestation of bioinformatics, a key feature of new eugenic media. "Modern encryption systems involve three basic elements: a message text (or plaintext), a method of encrypting the plaintext (cipher), and a means of decrypting the

ciphertext (the key). Might it be possible," Eugene Thacker asks in *The Global Genome*, "to encrypt a message into an actual DNA sequence?" (246). This is precisely what Susan and Ethan Duncan have done in *Orphan Black*; they have encrypted a message into the DNA of each Leda and Castor clone. Thinking of the clones' synthetic DNA like a computer code, the message or "plaintext" is to make the clones sterile so that their human creators can control their mechanism of reproduction. The "non-repeating substitution cipher," as Rachel refers to it, is the synthetic sterility sequence and ID tag embedded into each clone's DNA. The key, or the "means of decrypting the ciphertext," is hidden in the copy of *The Island of Dr. Moreau* that Ethan secretly gives to Kira in order to hide it from Neolution (after burning the original copy of the key in the early 1980s). As Ethan firmly attests to his corporate handlers: "Each sequence has a distinct key, and I have no intention of sharing them just to allow Dyad the opportunity of perpetuating this experiment." To ensure its safety, the key Duncan gives Kira is written in yet another code: a language only his adopted daughter Rachel understands. To use the key and decode the ciphertext, the two factions of Clone Club—Rachel and Sarah (Kira's mother)—will have to work together. This mission begins with the clones' discovery of their ID tags in the penultimate episode of season one.

In the last scene of "Endless Forms Most Beautiful," *Orphan Black* cross-cuts between two Leda sisters as they each attempt to come to terms with their lovers, following the discovery that they have been acting as monitors for Dyad. Cosima and Delphine, now working together, research her genetic sequence while Paul, riding the elevator up to the apartment he shares with Sarah, explains how he was blackmailed by Dyad. Inside Clone Club's makeshift headquarters (Sarah's brother's loft apartment),

Delphine gestures to the disc drive plugged into Cosima's laptop and branded with Dyad's company logo. Delphine explains that the genome it contains—Cosima's genome—is incomplete. Dr. Leekie scrubbed the synthetic sequence that differentiates her from her sisters—the same sequence that acts as each clone's ID tag. Not only is it a marker of identity, Cosima realizes, but "the sequence is a message. Like Dr. Craig Venter watermarked his synthetic DNA. It's a key to our origins." As the Dyad logo on Cosima's computer drive suggests, their origins are not natural, but man-made, corporatized, and patented. Craig Venter, the real-life geneticist who worked on the Human Genome Project, subsequently created the first self-replicating bacterial cell constructed entirely with synthetic DNA. In it, he encoded four "watermarks" to identify it as synthetic and enable the tracking of its descendants. In 2007, Venter filed patent applications US2007 0264688 and US2007 0269862, which cover the first synthetic species, *Mycoplasma laboratorium*. Applying the logic of Venter's sequence to her own human genome, Cosima realizes the synthetic portion of her DNA, her ID tag, must also contain a message. She loads the missing sequence Delphine gives her onto the computer: "But how to decode it?" she asks, highlighting the differentiated portion of her DNA with her cursor. The green, purple, gray, and blue parabolas—which correspond to the row of repeating nucleobases above (ATCG)—mimic the lines in the painting behind the couch. It is one of the many paintings Sarah's brother has drawn of the nearly identical Leda sisters, differentiated by sartorial signifiers like Cosima's glasses and Beth's police badge. Together, the paintings, the refrains of the pop song playing in the background, and the sisters' synthetic DNA sequences, all signify repetition with a difference, a theme that has become synonymous with the show itself. The interwoven strands of clone DNA

on Cosima's laptop, like the sisters they stand in for, link the limitless potential of body manipulation with the manipulability of the media image while also staging for us the postmodern entanglements of science, law, capitalism, and media. Even the paintings themselves hint at this entanglement in their simplistic representation of each Leda clone by her career: Cosima the Epigenetics Ph.D. candidate (science), Beth the police officer (law), Rachel the CEO of Dyad (capitalism), and M.K. the computer hacker who manipulates images and video clips (media).

As we have seen, these overlapping squiggly lines on Cosima's computer screen represent, visually and metaphorically, her cDNA. In a bioinformatic context, cDNA indicates an mRNA transcript's sequence expressed as DNA bases; the appropriately named *messenger* RNA delivers the genetic code through its sequence of exons, or *coding regions*. The project of "connecting information to the biological body"—here done through the analogy between DNA code and computer code—is, in Thacker's view, "the primary challenge of 'life itself' in the age of bioinformatics" (xvi). In *Orphan Black*, however, it is the decoding of "life itself," and the ensuing struggle over ownership, that present the biggest challenges. By patenting both its methodology and its bioninformatic code, Dyad reconstitutes "life itself" as intellectual property. This is an entirely new technique of power which diverges from the earlier modes of governmentality and disciplinary forces in Foucault that constituted a power relationship with "life itself."

As the clones soon realize, being able to decode their biology will be insufficient if they do not own the intellectual property. Still, cracking the cipher is the first step. Sitting down next to Cosima, Delphine reveals: "I know your tag number. I saw it many

times. It's numeric. If we know how that translates, we can figure out the rest. 324B21." Cosima repeats her tag number: "I'm 324B21." She—her personhood and her biology—has been reduced to information, to one six-digit alphanumeric tag. Learning the ID tag of other clones as the series progresses (3MK29A, 836XK9) reinforces the fact that they are bioinformatic *code*, and not sequential numbers, allusions, or a form of nomenclature that identifies them with their producers. This departs from the way in which, as Strathern argues, "the products of mental and intellectual labour" in Euro-American culture typically "carry the producer's [father's] name and the relationship between producer and product is one of identification" (20). Unlike the transmission of the father's name, which is passed down from generation to generation, the clones' numbers are unique, secretive, and do not identify them with either their human engineer (Susan Duncan) or the source of their genetic material (Kendall Malone). The product of two women, the Ledas and Castors have no father at the point of conception, nor do they bear either woman's name or likeness.[61] In fact, upon meeting Kendall, the first question Sarah asks is: "How come my original looks nothing like me?" The explanation she receives is that because Kendall carries two distinct cell lines, she does not look like either in its isolated form (which is enhanced by the show's casting choices). In other words, the clones are a *division* of Kendall Malone, created artificially from her DNA "samples," "data," and "banks" of donated eggs. And, in one of *Orphan Black*'s characteristic "false positives," Clone Club is given a similar six-digit number to help them track down their genetic original. The

[61] Each Leda clone carries the last name of the family who adopted her. Rachel, who was adopted by Susan and Ethan Duncan, thus carries their last name—but she is the only one. Every other clone carries a different name.

number comes about in season three, when Rachel and Sarah work together and translate the first two lines of the code in *The Island of Dr. Moreau*—before Neolution interferes and kidnaps Rachel. The translation reads: "In London town we all fell down and Castor woke from Slumber. Find the first, the beast, the curse, the original has a number: H46239." While the number does in fact lead to Kendall Malone, it turns out to be her prisoner's ID number from when she was incarcerated (for murdering her daughter's husband) and not a bioinformatic code like the ones inserted into the clones' DNA.

The similarity between prisoner numbers and bioinfomatic codes in *Orphan Black* delivers a striking metaphor: the clones' patented, synthetic sequences become their neoliberal, bioinformatic prison. The choice of six-digit alphanumeric ID tags, in particular, bears an allusion to a specific, real-world antecedent. In Nazi Germany during World War II, concentration camp prisoners were branded with alphanumeric tags of up to six digits so that they could be identified, controlled, and used for genetic experimentation. Unlike a tattoo on the forearm, however, the ID tag given to each clone is invisible and covert, encoded into their bodies internally and readable only to those who have the ability to decipher the code. Cosima was never meant to know that she is 324B21. Ciphers rather than simply numbers, the clones' ID tags carry a message: a message that works by *intervening in* and *directing* their biology. It not only identifies them, but alters them. The synthetic DNA sequence imprisons them without having to contain them within four walls. Surgical instruments and invasive, medical operations are largely unnecessary, and no Foucauldian disciplinary or panoptic apparatus is required to guard them. After all, the objective is not to regulate their behavior, but their biology. The code does not control what they *do* but, rather, who they *are*. The only possible

mechanism of escape is to find the key; in this case, not a physical key that unlocks a door, but an informatic key that decodes the cipher. The key would allow them to go back in and alter the clones' DNA, restoring their fertility, curing their auto-immune disorder, and performing any number of additional genetic manipulations or enhancements. Remembering that the code was created in the late 1970s when molecular encoding contained only two base-pairs—AT and GT—Cosima realizes she needs to use binary code, or ASCII, to translate her ID tag. She types in a series of 1s and 0s, and presses "convert," demonstrating that within a single medium, either television or the computer, the same biological information can be visually represented—or manipulated—in different ways. On the black computer screen, beneath the series of green 1s and 0s, she watches a phrase writes itself across the monitor: "THIS ORGANISM AND ITS DERIVATIVE GENETIC MATERIAL IS INTELLECTUAL PROPERTY." The prison in which the clones find themselves trapped is a specifically neoliberal one: the intellectual property patent. Cutting back to Sarah in the elevator, she picks up her ringing cell phone. The two scenes merge into one as Cosima's voice is heard extra-diegetically over Sarah's image: "The synthetic sequence, the barcode I told you about, it's a patent. We're property." The horror of this discovery is etched across Sarah's face as the camera cuts in for a close-up. The frame around her face is tight, with only the elevator's gleaming silver walls creeping into the shot. It is a fitting metaphor for the prison of the intellectual property patent.

While the idea of patenting the human being may still be science fiction, the fact that the Leda and Castor clones are covert projects *and* patent-protected property is actually grounded in real-world patent law. The United States, like many countries, issues

secret technology patents, protected under the Invention Secrecy Act of 1951. This act was passed by Congress to regulate the kinds of temporary orders generated by the United States Patent and Trademark Office during World Wars I and II and classified several defense-related patents. The act reads, in part:

> Whenever publication or disclosure by the publication of an application or by the grant of a patent on an invention [should], . . . in the opinion of the head of the interested Government agency, be detrimental to the national security, the Commissioner of Patents upon being so notified shall order that the invention be kept secret and shall withhold the publication of the application or the grant of a patent thereof under the conditions set forth hereinafter. (35 U.S. Code § 181)

Human cloning is certainly the kind of intellectual property patent that, if disclosed, would be "detrimental to national security" and thus qualify as an invention that must be "kept secret" by "withhold[ing] the publication of the application or the grant of a patent." As of 2007, 5,002 secrecy orders were in effect in the United States. Though the types of inventions classified under the Invention Secrecy Act are not disclosed, the majority of inventions which were previously classified (but have since been published) are in the areas of military defense and weapons development. As I will discuss in the following section, the Castor clones, even more so than the Ledas, fall into this area.

Returning to the sisters' phone call in the elevator, Cosima's voice details the implications of their genetic patent while the reaction takes shape on Sarah's face: "Our bodies, our biology, everything we are, everything we become, belongs to them. Sarah, they could claim Kira." Kira is the "derivative genetic material" mentioned in the patent:

as Sarah's biological daughter, she has the same synthetic watermarks in her DNA that identify her as Dyad's property. Like the real-life cloned plants Cooper discusses, when it comes to *Orphan Black*'s human clones, "what counts is the variable code source from which innumerable life forms can be generated, rather than the life form per se" (24). The biological patent allows Dyad to own its organism's "*principle of generation* without having to own the actual organism. In the age of post-mechanical reproduction the point is no longer to reproduce the standardized Ford-T model in nature, but to generate and capture production itself, in all its emergent possibilities" (24). It is this idea of surplus life—of owning the clones' "principle of generation" and the "innumerable life forms" created—that is encapsulated in the episode's title, "Endless Forms Most Beautiful." By virtue of its patent, Dyad—or its cabal, Neolution—owns the "endless forms most beautiful" generated from the Leda source code. They own "production itself, in all its emergent possibilities," which, in this case, includes Kira, Helena's unborn twins, Helena's embryos in the liquid nitrogen tank, and those children's children, ad infinitum.

Through its biological patents, Neolution and its subsidiary companies have protected themselves against many of the unforeseen consequences of their human experiments. In fact, it is their mistakes that may prove to be the most eugenically and economically lucrative. Once the synthetic sequence is implanted into human bodies, the results are unforeseeable. Citing Richard Novick and Seth Shulman's article "New Forms of Biological Warfare?," Cooper argues that once we move from the natural to the synthetic, from traditional weapons to biological ones, and once we implant them into a living body, these biological agents become "unpredictable in their effects, responsive to uncertain climatic and environmental conditions, indifferent to national borders and

prone to backfire on those who used them, making it difficult to define the boundaries between the civilian and the military spheres, friend and enemy, here and over there" (85). While Novick, Shulman, and Cooper are concerned with the demarcation between friend and foe, in *Orphan Black*, it is the epigenetic environment—the activation or deactivation of certain genes within the body—that is of the most social, economic, and eugenic value. These epigenetic factors make some clones susceptible to the sterility concept and its side effects and other clones immune. Duncan's sterility concept has failed to work on Sarah and Helena, and yet Dyad owns the unintended human result. These children have been legally patented before their birth and, because they are man-made products, patent law (presumably) supersedes the custodial rights of their biological parents. They are, first and foremost, *products*. With the intertwining of biology and information (genetic and informatics codes) in their DNA, these human products possess "two types of value—medical and economic—[which] are based on effectively transforming something immaterial that is exchanged into something material that is consumed as its endpoint" (Thacker 79). Since, as Thacker reminds us, "*encoding* is synonymous with *production*," it is in "the process of encoding the biological that the biotech industry is able to accrue profits (as intellectual property)" (xx). In other words, by controlling the mechanism of generation—the ability to encode each clone with a cipher—Dyad stands to make a profit, as the bodies of the clones themselves (and their offspring) entail future possibilities for financial gain. For instance, Sarah and Helena's immunity to the Ledas' autoimmune disorder has incredible, unforeseen benefits: Helena's ability to heal herself after being stabbed in the stomach, Kira's ability to walk away unharmed after being struck by a car, Sarah's immunity to the Castor virus, and

Kira's stem cells as a partial treatment for the Ledas' disorder. If isolated and harnessed, these biological components could be made into pharmaceuticals that would draw a hefty price on the open market. They would also increase Neolution's biopolitical influence through its ability to maximize life—not only by generating new life via cloning, but also by extending existing life through improving the human immune system (and, relatedly, by controlling who has access to this increased life and who does not). This is precisely why the rush to decode Susan Duncan's synthetic DNA sequences—both by Clone Club and Neolution—is so important. "*Decoding* is synonymous with *consumption* in that, in a medical sense at least, it is in the final output or rematerialization of biology that biological information is used, consumed, or incorporated into the body" (xxi). In this case, it is by isolating and synthesizing Kira, Sarah, Helena, and the other clones' DNA into a pharmaceutical, or by using it to generate new and improved synthetic DNA sequences for commercial use, that Dyad will maximize its profits. Finally, even though Dyad holds the patent and thus control over the Ledas and their "derivatives," it will need the lost key to make use of the patent it holds over the mechanism of generation and resume production of new clones. The missing key is essential to bringing about Neolution's desired eugenic future.

Surplus Life, Sterilization, and the Castor Virus

Neolution's quest "to create a more perfect human being" reimagines the early twentieth century dialectic of progress and degeneration in the context of advanced, genetic engineering technologies. The trope of degeneration takes on many forms in *Orphan Black*: the revival of vestigial structures like Olivier's tail, the simulation of asexual reproduction through both human cloning and the bifurcation of body parts

(tongues, penises), and the introduction of the sterility sequence; the very mechanism that creates the clones and bestows "surplus life" also carries a potentially deadly virus. Cloning itself, Baudrillard writes in *Simulacra and Simulation,* is a "monocellular utopia which, by way of genetics, allows complex beings to achieve the destiny of protozoa" (96). Its cancerous duplication of cells is not only a "hell of the same," but a "fatal strategy" powered by the death drive: it eliminates heterosexual reproduction which, he argues, is the guarantor of life or humanness. *Orphan Black* contests Baudrillard's polemical admonishments against human cloning as a degenerative return and offers a compelling, feminist alternative. While feminist and queer theorists from Lee Edelman and Leo Bersani to Judith Butler and Jackie Stacey have offered varying defenses of sameness or ways of locating alterity in non-reproductive sexuality, *Orphan Black* takes us in a distinctly new direction by offering a mechanism of biological reproduction and differentiation that does not have its origins in heterosexual procreation. Cloning in *Orphan Black* is not, as Baudrillard imagines, a process of "enshrining the reiteration of the same 1+1+ 1+1, etc." in which the copy "retains all the features, the whole discourse of traditional production, but…is nothing more than its scaled-down refraction" (97). The Ledas and Castors do not resemble their original, thereby contesting the kind of hyperreality Baudrillard warns about in which the original and its copies seamlessly blend together so that there is no clear distinction between them. Because their original—Kendall Malone—harbors two entwined cell lines within her unique biology, the clones are in fact an *isolation* of what was blended in the original. If anything, rather than a cheap copy or "refraction," the clones are a hyperreal "improvement" of Malone—visually, narratively, and philosophically. Through a clever casting choice, the young,

vibrant, and individualized Ledas and Castors look markedly different from the aging Malone, a cranky murderess who swears like a sailor and smokes two packs a day. The clones, Malone herself says, are the only good thing to come out of her "wretched life." In a further feminist revision of reproductive futurism, *Orphan Black*'s cloning technique reverses the traditional process of parentage. Instead of being the composite of two donor parents, as occurs in heterosexual reproduction, the Ledas and Castors are each *half* of a *single* donor parent. And, ironically, by sexually differentiating, isolating, and cloning the Leda and Castor lines, *Orphan Black* uses scientific intervention to create male and female children who were conceived naturally but never born *as such* because of Malone's chimerism—because of a hermaphroditic mutation that occurred during heterosexual reproduction. Moreover, were *Orphan Black* to follow Baudrillard's insistence on heterosexual reproduction as "the carrier of life" and the defining characteristic of humanity, Malone herself could, presumably, use her own cell lines—male and female—to sexually reproduce new children who would be the incestuous product of a single parent. Instead, *Orphan Black* offers the dual processes of cloning and gene editing (the insertion of unique, synthetic DNA sequences) to create new persons who are both biological clones *and* uniquely identifiable people. In a final blow to the heterosexual order, *Orphan Black* inserts a sterility sequence into the clones' synthetic genome that prevents (or, at least *should* prevent) them from reproducing sexually. Unable to be produced by—or produce others through—sexual reproduction, the Ledas and Castors are the tangible, visual, and genetic embodiments of the control society's dividual. Simultaneously distinct and divisible, the incessant stream of Ledas and Castors epitomizes how the physically embodied human subject can be endlessly divided and

reduced to data (genetic or computer code). Through them, we can better understand how, in the age of bioinformatics, we ourselves are not sacred and self-contained individuals but, rather, fluid and open beings, susceptible to being divided and reconstituted in a myriad number of ways.

Through Leda's and Castor's artificially engineered sterility sequences, *Orphan Black* reimagines the dialectic of immortality and death that shrouds the concept of human cloning in Baudrillard. This dialectic of life and death is woven into the clones' synthetic DNA, braided along with the strands of neoliberalism, capitalism, and eugenics that, together, constitute the clones' ideological and biological code. The same engineered and watermarked DNA sequences that give birth to the clones also ensure they cannot reproduce exponentially. Neolution and its subsidiary groups control the mechanism of generation and, with it, the ability to produce and/or restrict surplus life. Extrapolating on Marx's reflections on the counterproductive tensions of capital that make it unstable, self-destructive, and prone to crisis, Cooper argues that

> as long as life science production is subject to the imperative of capitalist accumulation, the promise of a surplus of life will be predicated on a corresponding move to devaluate life. The two sides of the capitalist delirium—the drive to push beyond limits and the need to reimpose them in the form of scarcity—must be understood as mutually constitutive. (49)

In other words, the promise of surplus life that the Leda and Castor clones offer necessitates a simultaneous curtailing of life which, in *Orphan Black*, takes the form of the sterility sequence. Due to a design flaw, it not only prevents the clones from reproducing "for free" but also manifests during adulthood as a sex-linked virus. Even

though Dr. Coady insists that "Castor and Leda have the same disorder," the fact that it manifests as a localized reproductive condition with auto-immune side effects in the women and a neurological, sexually-transmitted virus in the men means that it carries different biological, socioeconomic, and political consequences for the sexes that are, presumably, *different by design*. The women are, first and foremost, a biomedical experiment and the men, a military weapon.

Engineered for divergent purposes, Projects Leda and Castor are contracted out to different organizations that are, in turn, given contrary objectives. The Leda clones, under the jurisdiction of Dyad, are raised by individual families, unaware of their biological history or the remote, medical monitoring carried out by the corporation. They are raised as civilians and integrated into the general population while their Castor brothers are segregated from it. Under the control of a multi-national military contractor, the Castor clones are reared together on a private compound where they are routinely subjected to medical testing and asked to carry out missions by their adoptive "mother" Dr. Coady. The Castor men are aware that they are clones and that they have been bred to be soldiers, but they are unaware of their sterility virus or their ultimate role in Neolution's plan. Very much foot soldiers, they follow Dr. Coady's orders without asking questions. These differences in the manifestation of Leda's and Castor's sterility sequence, external environment, and mental and physical conditioning are all a product of their human creator's design: a method of exploiting nature and nurture both for the financial advantage of the patent holders and for Neolution's eugenic goal of creating a "more perfect human being."

By revealing Leda's disorder through the female body itself while representing Castor's disorder through a networked web of information, *Orphan Black* links biological sex to social function. Despite the series' many compelling feminist reversals, here it engages in its own act of social regression: it reduces the Ledas to their reproductive functions while allowing the Castors to serve as the "brains," the conduits of information, and the social actors. In the companion scenes that reveal the nature of Leda's and Castor's disorder, the virus is naturalized as an integral part of the female body while the Castor men become contagion vectors in a bioinformatic network in which the virus they carry ravages not their own sexual organs but those of their female partners. This contrast is further borne out by the scenes' divergences in color and mise-en-scéne, as well as the title of the episodes in which they appear: "Mingling Its Own Nature with It" and "Certain Agony of the Battlefield." As these titles suggest, the women's bodies have been "mingled" with an auto-immune disorder that "naturally" degrades their reproductive organs, while the men's neurological virus transforms the civilian landscape into a "battlefield" by inflicting "certain agony" on the women they infect by sterilizing them and depriving them of their reproductive functionality.

Entering the episode "Mingling Its Own Nature with It" in a moment of extreme visual duality, we are confronted with Cosima standing over the body of her deceased clone, Jennifer, scalpel in hand. Jennifer's autopsy holds the key to uncovering the nature of their condition. Part way through the procedure, Cosima erupts into a coughing fit: an early symptom of the disorder. As she turns away to avoid contaminating her subject, the film cuts to a long shot. Jennifer's pale, exposed, identical body is lying motionless in the center of the frame, directly between Cosima and Delphine. The juxtaposition between

Cosima's cough and Jennifer's dead body increases the emotional tension. Its bald head, nude torso, and thick, sticky blood threaten Cosima with her inevitable future if she cannot find a cure. Having already cut open the barren womb of her doppelganger, Cosima examines its structures and, with Delphine's help, reaches into the pelvis. Through a circular (almost vaginal shaped) opening, Delphine's latex glove-covered finger strokes the polyps growing on the uterine wall. The Leda's sterility concept, they realize, degrades the endometrium and prevents ovarian follicles from maturing. The close-ups of Jennifer's bloody and infected womb also invoke the familiar association of women's bodies and reproductive processes with disease, danger, and degeneration. This contrast of bright red blood against muted blue surgical gloves and the aquamarine hues of the Dyad Institute is familiar. Dyad and the female body serve as dual sites of medical discovery throughout *Orphan Black*.

In "Certain Agony of the Battlefield," these two established sites are complemented with a third: the computer-generated graphic, or the visual manifestation of bioinformatics. Cross-cutting between two scenes, the nature of Castor's disorder is revealed simultaneously through Cosima performing a pelvic ultrasound on Gracie at the Dyad Institute and Paul reading Dr. Coady's classified medical files on the Castor compound while Mark stands guard. Cosima and Paul thus take on the role of scientific investigators, each working with one half of the wife-husband pair (Gracie and Mark).[62]

[62] Gracie grew up on the religious, Prolethean compound run by her father Henrick Johanssen. The Proletheans' objective is to combine clone and non-clone DNA to breed a new generation of saviors. Gracie meets Mark when he is enlisted by Dr. Coady to go under cover as a Prolethean to recover information Henrick Johanssen stole from Project Castor in order to create clone/non-clone hybrids. While under cover, Mark falls in love with Gracie and, together, they escape from the Prolethean compound and elope. On their wedding night, Mark burns off his Castor tattoo, signaling his allegiance to Gracie over Project Castor (each Castor clone is branded with a tattoo of a two-headed horse).

The investigation begins when Gracie collapses from a mysterious illness and is rushed to Cosima's lab for testing. Pressing on Gracie's belly with her ultrasound wand, Cosima triggers a 3D computerized rendering of Gracie's uterus on the monitor. Gracie's ovary shows the characteristic polyps, highlighted with flashing, red arrows. The polyps, Cosima explains, are caused by a "protein in the blood" which is "similar to something we found in one of your husband's brothers." With the word "brothers," the film cuts back to Dr. Coady's rustic office, drenched in military green, where Paul is arranging six or seven stacks of papers, each containing a woman's driver's license, ultrasound photos, and medical reports. Cutting in to a close-up of one of the reports, the phrase "ovaries atrophied" is circled in black pen. The hand-written commentary and thick Manila file folders contrast sharply with Dyad's aquamarine, high-tech mise-en-scéne. They look more like the files shown in *Fit to Win*'s WWI medical camps than anything we might see today. Still, Dr. Coady's rudimentary files confirm what Cosima is looking at in her monitor, suggesting the continuity of certain eugenic ideologies and practices (like sterilization) across time, despite the high-tech facelift. What is characteristic of the twenty-first century, however, is the fact that the biological nature of Castor's disorder is revealed through the immaterial representation of information—medical records and computerized images—indicating the extent to which biology and information have become intertwined and computer-generated models now stand in for *the thing itself*. Through its application of "computer and networking technologies to the research problems of molecular biology," bioinformatics is reconfiguring the relationship between biology (natural) and technology (artificial) (Thacker 52). This similarity between computer and genetic codes suggests DNA is information and genomes, including

bacterial and viral ones, are computers. As Thacker argues, "the layering of one network—a biological one—onto another network—an informatic one—gives us an uncanny example of the pathogenic qualities of information" (241). In *Orphan Black,* the visual merging of information with biology (i.e. of Gracie's flushed face with medical records about the "fever" suffered by other women who have slept with Castors), and the frequent substitution of the former for the latter (i.e., of computer graphics and medical records for the sterility sequence) highlight the viral, contagious nature of both biological and informational networks. By showing Leda's disorder through the body itself while representing Castor's disorder through visual information about their female sexual partners, *Orphan Black* suggests that sterility is a "female" disease. The Ledas are naturally sterile; the Castors are contagion vectors in a bioinformatic network where the virus they carry can only be understood through the biological changes it effects on their female partners.

In the age of biotechnology, where fertilization can take place in vitro, *Orphan Black* re-centers the female body as the locus of (in)fertility, reproduction, and venereal disease. Men can transmit the virus, but it is women who must suffer its sterilizing effects. It is also only the women's bodies that are examined: Jennifer's corpse, Gracie's ovaries, and medical records of the Castor clones' female partners. Clone Club studies Castor's virus exclusively through its effect on the women; no examination of the men is either performed or suggested. Cosima never even recommends Gracie bring Mark in for an examination—a rather strange lack of curiosity for any geneticist, let alone one who shares much of his mysterious biology. This gendered division is reinforced as the cross-cutting between scenes continues. No sooner do the words "ovaries atrophied" fill the

screen than the door to Dr. Coady's office opens and in walks Mark, the source of Gracie's ovarian atrophy. "You mean Mark made me sick?" Gracie asks, her voice providing a sound bridge back to Cosima's lab where she is still on the examination table. Even as Gracie continues to prompt Cosima, her voice seems uninterested; her questions appear to be more for the benefit of the viewer than for Gracie. "But Mark isn't sick. He's strong. He's healthy." The scene cuts once more, juxtaposing the pale, reclining Gracie with her husband Mark, standing tall on the base. Paul hands him a Manila folder and, as he opens it, he sees a headshot of Gracie with the word "PENDING" stamped at the bottom in red ink. Even though Mark is the genetically-engineered clone, it is the naturally conceived Gracie who becomes Neolution's "pending" experiment. As he scans the file, the dumbfounded expression on Mark's face suggests he did not infect Gracie intentionally. "Your defect," Paul explains, "it's contagious. It's sexually transmitted." Separated by hundreds of miles, husband and wife learn the nature of the Castor virus at the same time: he on the base where he was trained, and she lying on an examination table next to her Leda sister-in-law at Dyad. Through these divergences in its aesthetic form, *Orphan Black* provides a sharp critique of gender and sexual politics.

Cosima's and Paul's discoveries about Duncan's sterility concept have not only gendered implications but economic ones a well. Despite Dr. Coady's insistence that "Castor and Leda have the same disorder," the fact that "it attacks the boy's brains [but] the women's epithelial tissue" means that it carries different biological, socioeconomic, and political consequences for the sexes. By damaging the Ledas' epithelial tissue it causes them to develop polyps on their ovaries, which makes them sterile and, over time, destroys their immune system. The Castor clones' primary sex organs, on the other hand,

are not affected. Instead of targeting their semen, resulting in azoospermia (no sperm) or oligospermia (low sperm concentration), the synthetic sterilization sequence acts as a sexually-transmitted virus that infects the men's female partners and sterilizes them. The side-effect that the men experience from the synthetic protein in their blood is neurological damage, which they refer to as "glitching." Through this divergence in symptomatology, the boys are reduced to their brains, the women, their wombs. Of course, one could argue that by causing the Castor clones' brains to "glitch," *Orphan Black* is in fact providing a social critique of these reductive positions. Whichever position one takes, one thing is clear: not only does this sex-linked difference resurrect the Victorian notion of "women and wombs" that has long characterized reproductive discourse, it also highlights Leda's and Castor's differing relationships with capital as it intersects with the life sciences. The Leda clones' sterilization sequence closely adheres to the logic of capital accumulation in that it "depotentialize[s] the future possibilities of life, even while it puts them to work," much like the real-life, genetically-modified plant Cooper discusses whose "capacity to reproduce itself is both mobilized as a source of labor and deliberately curtailed, thus ensuring that it no longer reproduces 'for free'" (25). By patenting and controlling the female clones' mechanism of reproduction, Dyad and the other biotechnology companies that act as a front for Neolution can manage the generation of surplus life and reap the financial benefits. Neolution has a monopoly and can engineer a condition of scarcity to generate greater value for their "products" as well as safeguard against their products flooding the market—either through additional self-replication or through the birth of a new generation of half-clones whose genetic material might also pose unforeseeable biological risks. The Castor clones, on the other hand,

operate according to a somewhat different logic. Their sterilization sequence has a higher purpose than to simply prevent them from reproducing "for free." The virus they carry is not only patented for financial gain, but also for use as a biological weapon. It extends beyond the "enterprise of capitalized bioproduction" (25) and into the realm of biowarfare.

Under neoliberalism, public health, the biotech industry, and the military have become strategically indifferent. As Cooper argues, "the boundaries between biomedicine and war are increasingly and quite deliberately blurred" (75). This is never truer than in the bodies of the Castor clones. With the synthetic sterilization sequence embedded in their DNA, the line of nearly identical men with piercing hazel eyes and strong jaw lines are living, breathing, human specimens of scientifically-engineered biological warfare, or "biowar." Defining the term, Thacker asserts that, "in biowar, biology is both the weapon and the target, a form of 'life itself' that targets 'death itself' through the use of a range of pathogens, epidemic infections, and, in some cases, engineered life forms" (227). The sterility virus the Castor clones carry marks them as instruments of biowar: their bodies constitute the "weapon" and the bodies of the women they sleep with the "target." Yet, as I will expand upon shortly, the "death itself" they target is not the death of current life but, rather, *future* life. It is in this way that they constitute a new and more virulent assemblage of earlier threats: the suicide bomber, the homosexual with HIV, and the laboratory-made chemical weapon. By virtue of their position as "body-weapons," the Castor clones contain, within their corporeality, the ability to sterilize every woman they have sex with—without alerting her and without losing their own life in the process.

Picking up where we left off on the Castor military compound, tucked away in an isolated pocket of the arid North American desert, walled off on every side by miles and miles of red sand, Paul and Sarah storm into Dr. Coady's office. Combining Cosima's medical discoveries with his own examination of the Castor boys' medical files and little black books (which contain the name, age, description, and lock of hair from each of their sexual partners), Paul confronts Dr. Coady about the nature of Castor's disorder. "It's a weapon," he yells, his tall well-muscled body filling the frame as he leans over her desk. "You're field testing it. You want to isolate it. To develop it in other forms." Dr. Coady's piercing blue eyes enlarge: "It could end wars in a single generation without spilling a drop of blood!" Paul turns his back towards Dr. Coady in anger, but Sarah inches closer. She rests her hands on Dr. Coady's desk, each directly behind a framed photograph of a young Castor boy. The compound's monochromatic military green helps Sarah's arms merge with the smiling visages of her brothers. It is a visual reminder of the Castor blood Dr. Coady just transfused into her body—an experiment which proves her unique biology somehow renders her immune to the virus. "So who wants *it*? Who is *it* for?" Sarah asks. Before Dr. Coady can either answer or evade her question, the film cuts, and we are transported back outside the thick iron gates of the military compound. *It.* Sarah, Paul, and Dr. Coady each refer to the weapon as "it," conflating the synthetic sterilization sequence with the Castor men themselves. They are not, as Sarah's question implies, free agents spreading the virus for their own purposes but, rather, biological weapons being controlled by an unknown force—presumably, the same force that engineered them three decades earlier. In an increasingly global, twenty-first century landscape where the supremacy of the nation-state has given way to private, multinational conglomerates

motivated not by territory or national defense but by private interests and profitability, there are two mysterious "who's" in Sarah's question: Who wants the weapons, and who are the weapons directed against? In *Orphan Black*, Neolution, much like a real-world terrorist group or a black-market biotechnology enterprise, is able to contract out its operations to a series of private companies (or cells) that are deregulated, covert, difficult to trace, and not subject to the earlier diplomatic strategies of negotiation, mutual deference, or superrationality. The Castor clones are simply one of their most promising biological weapons. As Dr. Coady makes clear, if deployed effectively, the Castor clones—if there were enough of them or if their virus could be isolated and put into other "forms" (bodies)— "could end all wars in a single generation without spilling a drop of blood."

The wars Dr. Coady refers to here are a science fiction realization of the race wars that figure at the center of Foucault's discussion of biopolitics in his 1975-6 Lectures, and the Castor clones are the eugenic weapons capable of performing a genetically-informed "racial cleansing." Biopower, Foucault argues, "takes life as both its object and its objective," which presents a conundrum. "How can a power such as this kill, if it is true that its basic function is to improve life, to prolong its duration, to improve its chances… How can the power of death, the function of death, be exercised in a political system centered on biopower?" (254). In answer to his own question, Foucault asserts that it is "at this moment that racism is inscribed as the basic mechanism of power. . . . Racism makes it possible to establish a relationship between my life and the death of the other that is not a military or warlike relationship of confrontation, but a biological-type relationship" in which the so-called "inferior" must die so that "I—as species rather than

individual—can live" and "proliferate. . . . [T]he death of the bad race, of the inferior race (or the degenerate, or the abnormal) is something that will make life in general healthier: healthier and more pure" (254-5). Foucault here locates racism as endemic to the dialectic of life and death, much like Cooper argues that the dialectic of life and death is intrinsic to the life sciences as they ascribe to the "capitalist delirium" in the age of neoliberalism. Castor's sterility virus is infused with all of the above.

Looking back to the early twentieth century, warfare was limited to the tactics of selective breeding, surgical sterilization, and euthanasia, which had to be carried out on an individual basis and which were imperfect in their selection of genetically "inferior" targets. In the twenty-first century, however, the information gleaned from mapping the human genome, gene editing, and epigenetics makes it possible to engineer biological weapons that can target specific genes, cells, or chromosomes. This is certainly one possible use for the Castor clones. If Dr. Coady identifies a specific group as the enemy, the Castors can be deployed to sterilize its female members, effectively wiping out the next generation. At present, though, the Castor's victims do not appear to belong to any particular group, class, or ethnicity. The women whose files we see share no discernable physical or genetic characteristics and, given our awareness that there are hundreds, perhaps thousands, of victims whose files we do *not* see, any attempt to classify them would be misguided. The only thing they have in common is that they are willing to go to bed with one of the Castor men. Whether we interpret Castor's victims as random "easy" targets (prostitutes and women they can pick up at bars) or intentionally selected "promiscuous" women, it is clear that the virus carries implications that extend far beyond the eugenic attempts to sterilize "loose" women in the first half of the twentieth

century. If Castor's virus can be isolated as Dr. Coady suggests, it can be altered and mobilized. Surely her statement that the virus "can end all wars in a single generation" is an exaggeration, but its potential should not be underestimated. Beyond militarizing the Castor men to target specific women based on genetic criteria, the virus itself could be modified so that, regardless of who was exposed, it would only affect those women with genetic markers deemed "inferior." If successful, an entire segment of the population could be sterilized, preventing the next generation of so-called inferior children from ever being born. While *Orphan Black* remains silent on who Project Castor's target might be, history has taught us that it is likely a segment of the population who deviates from white, middle-class, heterosexual normativity. In fact, the series' attempt to capitalize on liberal "postraciality" through its emphasis on genes rather than race or class as a marker of inferiority only works to reifiy hegeomonic whiteness, embodied onscreen through the pale, idealized bodies of Projects Leda, Castor, and Brightborn.

The possibility of sterilizing a significant proporition of the human population also calls to mind Gilead from Margaret Atwood's *The Handmaid's Tale* where all reproduction is controlled by a powerful elite. It is through restricting reproduction that Gilead's men are able to overthrow the American government and establish their own dictatorship. While Dr. Coady's ultimate plan for the Castor clones is still rather mysterious at the end of season four,[63] her focus on reproduction is suggestive of numerous other fictional, reproductive dystopias: Aldous Huxley's *Brave New World*, Johnathan Sinisalo's *The Core of the Sun*, and Lois Lowry's *The Giver*, to name only a few. Like *Orphan Black*, these militaristic socieites restrict reproduction as a way of

[63] Season 5 will premiere in June 2017.

instituting a new world order populated by eugenically selected, fertile women. This practice stands in contrast to the way in which reproduction as a military strategy has historically been deployed. For centuries, the systematic, mass "rape of women has been used as a tactic of war to advance one group's political, economic, social, or religious position over another" through a process of ethnic cleansing (Milillio 1). It is used as a way for one ethnic group to gain social control over "the other" and redraw ethnic boundaries. As Gita Sahgal argues, since "women are seen as the reproducers and carers of the community… if one group wants to control another they often do it by impregnating women of the other community because they see it as a way of destroying the opposing community" (Smith-Spark). In contemporary conflicts, such as the current opposition between the pro-government Janjaweed militias and the non-Arab groubs in Sudan, Smith-Spark explains that the practice of ethnic cleansing carries with it the additional risk of HIV infection. As I will explain later in this section, it is this last commonality—infction—that links *Orphan Black* back up with real world eugenic history.

Unlike either traditional military combat or contemporary modes of biowar, the kind of violence the Castor virus enacts is un-bloody, invisible, and silent. Examining the Castor clones against their real-world antecedents—the suicide bomber, the homosexual with HIV, and the chemical weapon—the striking differences in their appearance, strategy, and effect make them more elusive, more effective, and more deadly. In the 2010s, the suicide bomber is the most visible personification of terrorism and the most salient perceived threat to a Western way of life: capitalism, liberalism, democracy, and scientific advancement over religious conservativism. Neolution's Project Castor goes

beyond defensive bioweapons research intended to counteract future threats. An offensive strategy in its own right, Project Castor's strategy is, to borrow the language of the real-world U.S. Office of Force Transformation, not only to "anticipate the future" but "whenever possible help to create it" (qtd. in Cooper 90). The paradox that the Castor clones raise is this: What happens when the terrorist is "us?" Or, at least, he appears to be. For, not only is Project Castor's modus operandi unlike that of most contemporary terrorist groups, but its biological weapons look strikingly different from those we have grown accustomed to seeing on CNN and Al Jazeera: they are white, Western, clean-cut, and dressed in uniforms that resemble a cross between U.S. and Canadian army fatigues.

The Castor clones are very much "body-weapons," to use Jasbir Puar's term, in a fashion analogous to that of the suicide bomber, but there are three salient differences which irrevocably alter their mode of warfare: their weapon is entirely contained within and inseparable from their bodies, their weapon does not fully annihilate their bodies or those of their victims, and their weapon and its effects are invisible at the moment of "detonation." Expanding upon Mbembe's analysis of the suicide bomber, Puar argues in "Queer Times, Queer Assemblages" that the suicide bomber, as terrorist assemblage, is:

> a body machined together through metal and flesh, an assemblage of the organic and the inorganic; a death not of the self or of the other, but both simultaneously; self-annihilation as the ultimate form of resistance and self-preservation. This body forces a reconciliation of opposites through their inevitable collapse–a perverse habitation of contradiction. As a figure in the midst of always already dying even as it is the midst of becoming, like the homosexual afflicted with HIV, the suicide bomber sutures his or

> her status as sexually perverse. . . . The dynamite strapped onto the body of a suicide bomber is not merely an appendage; the "intimacy" of weapon with body reorients the assumed spatial integrity (coherence and concrete-ness) and individuality of the body that is the mandate of intersectional identities; instead we have the body-weapon. The ontological affect of the body renders it a newly becoming body; queerly. (128-9)

Unlike Puar's suicide bomber, *Orphan Black*'s Castor clones are exclusively organic; their weapons are not strapped to their chests but inserted into their DNA before their birth. They are not voluntarily arming themselves in the name of self-preservation or the preservation of their religious, political, or personal beliefs. They, like their victims, have been involuntarily infected with the virus and there is no way, at present, to isolate and remove it from their DNA. Unlike a bomb, it cannot be deactivated. Another factor that makes the Castor clones potentially more dangerous than the suicide bomber is that their infection, their "detonation," is silent and invisible. The women they sleep with are unaware at the moment of their infection and, when symptoms of the virus surface days later in the form of red eyes, chills, and a high fever, they are unlikely to deduce the source of their infection. They will probably not know they are sterile until they undergo medical testing or try unsuccessfully to conceive. It is a form of bioterrorism in which the intended targets and victims are unaware of their own victimization. In stark contrast to the suicide bomber whose greatest achievement is the drama of his spectacle and the amount of fear he instills in his enemy, Project Castor's objective is to remain concealed. After all, the virus is designed to sterilize the clones' female partners but not to kill them. Unlike the victims of the suicide bomber or the partner infected with HIV, the Castor

clones' victims do not die as a result of transmission. The death the Castor men bring about is not the death of current life but, rather, the death of future life, which is not a *death* at all. Project Castor does not employ the model of the praying-mantis who kills her partner after sex, the bee who sacrifices his life to sting his enemy, or the human martyr who annihilates both himself and his victims simultaneously. The living do not die so that new life can be born; instead, the living continue on and new life is never created. The virus is not a death per se, but the non-existence of future life. Neolution takes Mbembe's thesis in "Necropolitics"—that "the ultimate expression of sovereignty resides, to a large degree, in the power and capacity to dictate who may live and who may die" (11)—and revises it to read: *whose life may be created, and whose life may be engineered out of existence.* Neolution's target is an entire generation who has yet to be conceived. Perhaps more in line with the detainee Puar discusses in *Terrorist Assemblages*, the Castor clones and their victims defy "the distinction between life and death, bringing biopolitics and necropolitics into crisis" (157). Much like the detainee who "is not left to die, but mandated to live" (157), so the Castor clones are also mandated to live in order to continue to spread the virus. It is only by living—and *not* committing suicide or dying in the act of transmission—that they can continue to work as biological weapons, sterilizing their female targets one by one. The side effects of their virus, their neurological "glitching," may eventually claim their lives, but not until after they have infected a large number of victims. Finally, in the act of sexual transmission, the Castor clones' white, heterosexual, male normativity suddenly becomes dangerous and exoticized. Through the danger that his body poses, the Castor terrorist, like his non-

white and homosexual counterparts, becomes "improperly" sexual and thus inescapably queer.

While Castor's sexually-transmitted virus functions in many ways like HIV has in the late twentieth century Western imaginary, by introducing it through the body of the faithfully married Gracie, *Orphan Black* positions the virus *alongside* heterosexual normativity rather than against it. Via its effect on Gracie, the Castor virus offers a feminist critique of normative domesticity and reproductive futurism. Like HIV, the Castor sterility concept is a sexually transmitted immunodeficiency virus passed through the blood and other bodily fluids. It can be identified in a lab by detecting a "protein in the blood," just as HIV infects white blood cells that have a specific receptor protein (CD4) on their surface. In the previous scene from "Certain Agony of the Battlefield," the sterility virus is first identified not through the other Castor brothers' escapades with prostitutes or one night stands, but through Gracie, the Prolethean girl who had sex for the first time on her wedding night. Identified with an act of loving married heteronormativity rather than prostitution, sodomy, or promiscuity, the threat posed by the Castor virus figures very differently than that posed by the homosexual with HIV in 1980s and 1990s social discourse. In "The Spectacle of AIDS," Simon Watney argues that, in the cultural imaginary, "the spectacle of AIDS operates as a public masque in which we witness the corporal punishment of the 'homosexual body,' identified as the enigmatic source of an incomprehensible, voluntary resistance to the unquestionable governance of marriage, parenthood, and property" (209). The body of the homosexual with HIV—weak, pale, and disease-ridden—becomes the very locus of his punishment for sexual deviance and promiscuity, for his refusal of marriage and parenthood. Defined

through opposition to one another, the homosexual with HIV and the family are prescribed as cultural antagonists—the former reprimanded for his transgressions against domestic normativity while the latter, "the national family unit—understood as the locus of the 'the social'—is cleansed and restored" (208). In sharp contrast, the ravages of the Castor sterility virus are depicted visually through the body of Gracie—the sexually pure, morally virtuous girl who grew up on the religious Prolethean compound and waited until her wedding night to lose her virginity. Already impregnated through IVF (with embryos created from her father's sperm and Helena's eggs), Gracie is an unwitting and genetically-fraught Prolethean Virgin Mary. The sterility virus thus has two distinct effects: it aborts the genetically-engineered (and, arguably, incestuous) child she is already carrying (the Prolethean baby Jesus) *and* it prevents her from conceiving any future children with her husband who would be the natural product of a heterosexual nuclear family. By disrupting both, *Orphan Black* prevents the attribution of social value to one child—or method of reproduction—over another. The sterility concept, in its current iteration, targets all women alike: the prostitute, the heterosexual married woman, and the woman gestating a child conceived through IVF.

What remains unclear in *Orphan Black* is whether the Castor sterility concept can be passed among men. While the Leda clones are shown to be diverse in regards to their gender identities and sexual orientations, all of the Castor clones we have encountered thus far are male-identified and heterosexual. Neither Cosima's nor Paul's medical investigations examine whether the Castor virus can be passed among men or through oral or anal sex with partners of any sex. Though if it can be passed through blood and bodily fluids like HIV, one would surmise that it could be transmitted among men. If so,

would it make their male partners sterile, like their female counterparts, or would it transform them into contagion vectors who could then pass the disease on to other partners? If the latter, would not an army of Castors who have sex with men constitute a desired arsenal of bioweapons for Neolution?

Unlike traditional chemical warfare's objective of instilling fear in the many by engendering what Agamben refers to as an ongoing "state of exception" (2), the Castor clones' mode of biowarfare operates precisely by avoiding spectacle and remaining undetectable by civilians in the "battlefield" of mainstream society. In the Western world, the threat of chemical warfare garnered widespread attention following the 2001 anthrax attacks carried out via U.S. mail and has been dramatized in a number of films and TV shows including *The Crazies*, *Mission Impossible 2*, *CSI*, and *Madame Secretary*. What both these real-life and fictional examples have in common is the ability to create a pervasive sense of fear, panic, and anxiety that is disproportional to the number of victims and which persists even after a specific threat has been extinguished. As Thacker argues, this kind of biowarfare

> affects many by infecting a few. In this sense, it would be more appropriate to refer to biowar as utilizing not a grandiose, genetic bomb, but rather as deploying a number of genomic messages…*it is the message, not the bomb, that is the guarantee of the continuing effectiveness of the threat of biowar*. The message—in a letter, a vial, or even a computer file—attempts to have the best of both worlds. It is able to create microevents in which the reality of the threat is substantiated and, in doing

> so, it creates a condition of permanent threat, an ongoing "state of exception (241; emphasis original).

What allows the threat of biowarfare to terrify us—even if its actual threat is minimal—is the fact that it is "related closely to a certain horror of the body, or, more specifically, to a horror of what biological warfare (whether for defense or for acts of bioterrorism) is able to do to the body" (239). It is a knowledge and fear of how these biological agents can ravage the body and our ability to imagine it on our own bodies. Castor's form of biowar differs from these traditional examples of biological chemical weapons in its secrecy—its desire to avoid detection. Instead of engendering a permanent "state of exception," Castor's sterility virus works precisely by not calling attention to itself. It is only by having her "boys" stay under the radar that Dr. Coady can test their effect and continue to develop them— and their virus—for a more targeted, future use.

While the women the Castor clones sleep with are unaware of their participation in Neolution's eugenic program, the fact that these encounters are consensual demonstrates the extent to which even biowarfare has adopted the neoliberal logic of "new eugenics." The next eugenic wave, the Critical Art Ensemble argues, "has masked itself in the utopian surface of free choice and progress. In this sense, power vectors have stolen and are cautiously using the strategy of subversion in everyday life to create *a silent flesh revolution*" (137; emphasis mine). It is this strategy of silence that enables the Castor boys to lure their victims and obtain their cooperation. It is also this issue of cooperation and consent that both recalls and departs from the early twentieth century practice of forced sterilization. The women in *Orphan Black* are choosing to sleep with the Castor boys, but they are not choosing to be infected with the sterilization virus.

Much like some of the early victims of sterilization, they are giving consent, but it is not informed consent. In fact, as we see with Mark, most of the Castor brothers are unaware of their virus' effect on their female partners. Like the women themselves, the Castor clones did not consent to having the virus embedded in their DNA; they are victims as much as the women they infect. They are contagion vectors, not the genetic engineers who have designed the virus and unleashed it on the population. In Neolution's broad arsenal, they are merely one tool for steering human evolution.

Unfortunately for Neolution, Paul's fury over the genetic implications of Project Castor leads him to burn down the military base in the penultimate episode of season three, and the majority of the Castor clones expire as the flames engulf the base. Not even bioweapons can survive the fury of Nature's deadliest instruments. With the season five priemere drawing near, the future of the cloning projects remains uncertain. With the constant shifting strategic alliances of the various conglomerates who are, or once were, a part of Neolution's diffuse system of corporate privatization and biotechnology ownership, it appears there are an infinite number of motivations, designs, and plans for the implementation of cloning technology and the bioweapons hidden in their DNA: Dr. Coady's military endeavors, Dyad's financial motivations for profitable pharmaceuticals, the Proletheans' desires to combine clone and non-clone DNA to breed a new generation of saviors, and our protagonists, the heroic band of misfit-clones who simply want to cure themselves. What seems certain, however, is that whatever direction human engineering takes, the clones' synthetic DNA will be front and center.

Conclusion

In November 2012, the scientific journal *Nature* introduced the world to "DNA's new alphabet." Over the last few years, teams of scientists, most notably Floyd Romesberg, Steven Benner, and Erik Kool, have been "tinkering with DNA's basic building blocks" to engineer "unnatural base pairs": DNA bases beyond nature's A, T, C, and G. Moving past simply cloning or editing existing DNA sequences, scientists are adding new synthetic letters to the DNA alphabet. Kool, for instance, has introduced difluorotoluene (designated F). While currently it has no industrial applications, it has been effective in taking the place of T and combining with A to form the new base pair A-F. Inspired by what he calls the "science-fiction appeal of designing or even improving on living systems," Kool asserts that an expanded DNA alphabet carries the promise of storing more information, acting as an affinity reagent (used to treat cancer and bacterial infections), and creating new proteins for pharmaceutical use. Given the U.S. Supreme Court's ruling in *Myriad* that synthetic DNA is patent eligible, these new DNA bases—and the surplus life they promise—will be the private intellectual property of their engineers. The product of capitalism's merging with the life sciences under neoliberalism, these new DNA bases bring with them the ability to maximize both life (longevity, higher rates of reproduction, synthetic species) and profits (pharmaceuticals, gene therapies, patent royalties). Following the article in *Nature*, numerous magazines, newspapers, and television programs have reported on the discovery and lauded its seemingly infinite possibilities. What seems to be missing from this coverage, however, is a historical consideration of genetic engineering's eugenical past as well as any mode of skepticism about its potential biological, social, or economic side effects. Instead, both

the reporters and the scientists themselves seem unilaterally focused on a particular objective. As Kool tells *Nature*: "Why is the chemistry of living things the way it is? Is it because it's the only possible answer? I believe the answer to that question is no. And the only way to prove it conclusively is to do it." Like *Orphan Black's* Neolutionists and Proletheans, our real twenty-first century geneticists have no grand theory or roadmap for implementing a humanitarian eugenical future or "Neotopia." Perhaps Cosima says it best: "Nobody's got any idea. We're just poking at things with sticks." We're not sure what we are going to find, we're not sure what we're going to build, and we're not sure what effect it is going to have. It is simply in our nature—in our very DNA—to try, to keep poking, to keep imagining, and to keep building, both in the laboratory and on the science fiction screen, *because we can*. The only way to know what's possible "is to do it." But there is one more thing we should do as well. By critically examining genetic engineering's debt to the eugenics movement and how it is has been shaped at every turn by the co-existence of both progressive and reactionary elements, we should allow these historical lessons to help us steer our own movement in a different direction as we inevitably continue to build.

CHAPTER FOUR:

BACK TO THE FUTURE: *REGENESIS*, THE GAY GENE, AND SCIENTIFIC CENSORSHIP

Dr. David Sandstrom: "Scientists need a free flow of information. Censorship isn't the answer."

Dr. Robbie McCaine: "You're an idealist, Dr. Sandstrom. In your world science is benevolent. Companies are ethical. That's not the real world. . . . I want to be arrested and tried. But the real trial will be the state of science. It will put this whole issue on the front page."

Dr. David Sandstrom: "A Scopes Monkey Trial for the Ages."

— *ReGenesis*, "Let it Burn," season 3, episode 9

Standing together on the raised cement balcony, the two scientists clash over ideology. During the course of the series, both men have risked their lives and their civil liberties for the advancement of the discipline. This time, Robbie has gone too far, engineering a more virulent strain of smallpox to demonstrate the ease with which it can be done. Bombastically, he asks David to support him in a public trial. He imagines himself a Scopesian figure, a willing martyr for the impending scientific revolution. But unlike his Progressive Era counterpart, Robbie is fighting *for* rather than *against* censorship. Through the personages of Drs. Sandstrom and McCaine, *ReGenesis* animates one of the most heated twenty-first century debates currently being argued in scientific journals and oversight committees like the National Science Advisory Board for Biosecurity (NSABB). With the rapid eruption of bioterrorist threats ranging from deadly pathogens to artificial human enhancements, should scientific information be censored? In this chapter, I will argue that we are asking ourselves the wrong question. Instead, we should

be asking: What is the structuring logic that underlies science's dual-use dilemma and what possibilities are being foreclosed when we use this model to theorize the role of science in society?

Set at the headquarters of the North American Biotechnology Advisory Committee (NorBAC), *ReGenesis* follows its core team of scientists as they work to stop immediate biological threats while assessing the long-term social, ethical, and evolutionary impacts of new developments in biotechnology. The prospect of implementing censorship protocols to govern genetic science's expansion into genome editing is emblematic of *ReGenesis*'s strategy of looking backwards to find tools that might help propel us forwards. Unlike early eugenicists and cultural theorists like Baudrillard who railed against the threat of degeneration, *ReGenesis* sees the vehicle for human progress in our evolutionary past. Each of the genetic treatments they develop involves re-introducing extinct viruses into the body or reactivating its vestigial structures. In fact, this approach is written into one of the show's notoriously cheeky episode titles: "Back to the Future." As a series, *ReGenesis*—literally, "genesis again"—fashions its own mythology by liberally combining incongruous elements from different interpretations of *re*-genesis. The result is an *ideological* double-helix that develops alongside the genetic one it presents onscreen through high-definition computer graphics. As the strands of this allegorical double-helix are woven together, Christian theology, Nietzschean philosophy, neoliberal capitalism, and genetic science combine to imagine a human being's *re*-genesis. Onscreen, these circuitous movements in and through different eugenic ideologies are complemented by the show's toying with time's succession. In most episodes, narrative linearity is disrupted by a combination of short daydream

sequences and extra-diegetic "rewinds" and "restarts." Mirroring evolution itself, *ReGenesis* is not a linear movement forward but an uneven progression of moments (adaptations) that co-exist with these "rewinds" (vestigial parts), which are no longer part of the narrative but are still extant in our memory.

ReGenesis's attempt at engendering human progress centers on a series of genetic trials designed to test experimental cures for the conditions that afflict its principle characters who are simultaneously the scientists and the subjects. The conditions that affect NorBAC's team members—today's genetic engineers—mirror the conditions of "nervous excess" that the Progressive Era eugenicists believed were associated with high intelligence and imagination. By resurrecting early eugenic ideologies and interweaving them with contemporary theories of genetic determinism, *ReGenesis* provides a window into how humanistic traits like sexual orientation are being thought in the twenty-first century.

In this chapter, I argue that contemporary scientific literature and sci-fi television reimage the Progressive Era notion of sexual inversion in two different ways. Beginning in the 1990s, LeVay's and Hamer's purported discoveries of "gay brains" and "gay genes" resurrected the foundational principle of sexual inversion by locating this "inversion" not in our gender presentation but, rather, hidden in our genes or anatomical structures—namely, in the supposed sexual dimorphism of the human brain and on gene Xq28, inherited from the mother. This turn-of-the-twenty-first century re-writing of the mother's role in male homosexuality is replicated in *ReGenesis* as Harlan locates the "gay gene" on chromosomal region X313, classifying male homosexuality as a sex-linked trait passed genetically from mother to son. Analyzing both Hamer's flawed study

on Xq28 and its correlate in *ReGenesis*, I argue that the life of the mythical gay gene, which has become materialized not in the scientific laboratory but in our cultural imaginary, is the result of several forces that have coalesced under neoliberalism: a willful misunderstanding of the determinative role of genes in human behavior, the conflation of truth with profitability, corporate investment in speculative (genetic) futures, and consumer free choice.

The second way *ReGenesis* reimagines the concept of sexual inversion is through the creation of its characters' personas. *ReGenesis* takes the cluster of characteristics that once defined the "neurotic genius" and disseminates them among NorBAC's original team members. Each character's high intelligence is paired with one of the less advantageous qualities in that cluster. David Sandstrom (Canadian) is the charming yet self-destructive chief scientist who is mired in addiction. Carlos Serrano (Mexican) is the team's geneticist, an amateur boxer, and a gay man. Jill Langston (American), the lead virologist, suffers from generalized anxiety disorder characterized by frequent panic attacks. Bob Melnikov (Canadian), the biochemist diagnosed with Asperger's Syndrome, provides much of the series' humor through his social misadventures and inopportune comments that capture what the audience is thinking but would never say aloud. Over the course of the series, a possible genetic cure arises for each of these conditions—addiction, homosexuality, anxiety, and Asperger's—and, with each one, comes a host of ethical considerations as the team must decide whether to take, manufacture, or recommend the cure.

In *ReGenesis*, these four disparate conditions are connected through the corporation, represented by Auflander Dorheimer Industries (ADI) and its subsidiary,

Lowie Pharmaceuticals. This is a marked departure from how, in the Progressive Era, these conditions were thought to be interrelated through the ideology of the "neurotic cluster." While this linkage was artificial, it provided an avenue for recognizing the social utility of the nation's "abnormal" citizens. With the corporation increasingly taking the place of the state in the twenty-first century, we are now, in the words of Alan Wolfe, "citizens of government but subjects of corporations" (641). Enlightenment values have been reworked to support the neoliberal imperative: free expression has become free trade, the separation of church and state has become the separation of private and public spheres, and radical individualism has become consumer choice and the pursuit of personal profit. With the advent of genetic engineering, consumer choice now extends to genetics. There is the fantasy that one can re-make oneself by picking and choosing select characteristics. The Progressives' celebration of human variation is thus rescinded, and any deviation from the norm is re-written as an individual problem that requires an individual solution. In *ReGenesis,* the solution is a genetic cure: a quick fix for the unruly citizen. By focusing its narrative around the cures's efficacy, *ReGenesis* deflects attention away from its underlying premise: that erasing these human traits is marketable. Counterintuitively, the cure's success is not the main objective; the corporation makes a profit simply by selling it. And, as we learn in the series' exploration of addiction, capitalism actually depends on us *remaining* addicted. It needs us to purchase each successive "quick fix" in the form of yet another commodity (or cure).

ReGenesis's genetic exploration of these four conditions relies heavily upon and partially refutes the cultural narrative of the omnipotent gene that has come to characterize twenty-first century biopunk film and television. Writing about the series

Dark Angel, in which the protagonist's human DNA is spliced with feline DNA to give her a human form with "feline grace," A. Bowdoin Van Riper asserts that science fiction's utilization of "mix-and-match DNA is scientifically preposterous but fully consistent with popular culture's routine assumption that complex, fuzzily defined traits can have simple, discrete genetic causes" (117). The idea that a single gene controls complex human qualities, behaviors, or orientations, is a fiction that has arisen with the advent of the Human Genome Project and the belief that the discovery of the gene for blue eyes or blond hair can be applied unilaterally to far more complex human qualities, ones which cannot be seen with a high-definition microscope. Looking at the "gay gene" in particular, the fact that homosexuality no longer needs to be justified through an association with high intelligence, creativity, or social utility indicates a degree of social progress since the early twentieth century. Yet, it is the very ideological separation of homosexuality from these other qualities that makes it vulnerable to eradication a century later. Tying complex behaviors to a single gene "invites discussion of medical 'solutions': breeding, or engineering, the offending gene out of the population" (117). Of course, this conclusion is too simplistic to represent the demonstrably complex reality of human behavior. According to Van Riper, this belief "persist[s] because the makers of both popular culture and public policy, like their audiences, often find simple and clear-cut stories more congenial than the complex, messy ones that the real world typically offers" (117). In my view, Van Riper's explanation is, like the myth he critiques, far too simplistic. I argue this cultural fiction persists, despite scientific evidence to the contrary, because of a reactionary response to social movements, like feminism and gay liberation, which seek to use science to justify political rights. With the degeneration of modern

political organizations, the rights discourse of the twentieth century is no longer effective and is being replaced by a problematic essentialist appeal to science.

While *ReGenesis* utilizes the omnipotent gene theory to conceptualize the "gay gene," the addiction "gene cluster," and so on, the failure of its proposed genetic cures reveals the complex nature of biosocial traits, their interconnectedness to other genes and anatomical structures, and the inability to cure them without damaging other aspects of human functioning. Over the course of the series, NorBAC goes ahead and produces the cures for anxiety, addiction, and Asperger's, allowing us to see first-hand the devastating consequences, but it does not manufacture the cure for male homosexuality. Had NorBAC tested it on actual men and found that it negatively compromised their health, the problem would be presented as its ineffectiveness rather than its socio-political side effects. When viewed in this light, *ReGenesis*'s resolution of the gay gene story is less of an ethical victory than a testament to the persistence of anti-gay prejudice and the fear that, if the gay gene can be "turned off," *it will be*. Through the gay gene, *ReGenesis* introduces science's dual-use dilemma, which becomes demonstrably more complex with each of the other potential genetic cures.

The dual-use dilemma, which first arose in the 1940s with the scientists involved in atomic weapons development, is now resurfacing as advances in molecular biology have enabled the creation of genetically-engineered bioweapons. After the first atomic bomb was dropped on Hiroshima, Manhattan Project scientist Richard Feynman articulated the dilemma through a poignant metaphor: "to every man is given the key to the gates of heaven. The same key opens the gates of hell. And so it is with science" (qtd. in Selgelid 36). In other words, the same scientific knowledge that can better humanity

also carries the power to destroy it. This dilemma is built on the assumption that the keys to heaven are inherently good. I argue, however, that we should be just as skeptical about the gates of heaven. In my view, the dual-use dilemma is a false dilemma; it occupies us with the question of censorship in order to distract us from the structuring logics of capitalism at work beneath the surface. Thus, instead of asking ourselves whether we should censor discoveries that could harm humanity while trying to improve it, I urge us to ask: Why must humanity be on a path towards continual betterment and why must science be tasked with this purpose? Why must science have a purpose at all? The idea that scientific research should have a clearly stated objective is a recent invention that has developed in tandem with the expanding capitalist economy. Now termed "applied research," it encompasses all "efforts that attempt to determine and exploit the potential of scientific discoveries or improvements in technology such as new materials, devices, methods and processes. It typically is funded in research, development, test and evaluation programs" (Cornell University Legal Information Institute 1). In other words, applied research is funded by institutions that seek to profit from its discoveries in the form of intellectual property patents, publication copyrights, and pharmaceuticals. This is a marked departure from the model of "basic research" that prevailed from antiquity through the first quarter of the twentieth century. Basic research is a "systematic study directed toward greater knowledge or understanding of the fundamental aspects of phenomena and of observable facts without specific applications towards processes or products in mind" (1). It operates on the assumption that scientific discoveries cannot be planned but, rather, happen by chance during the course of scientific investigation. The dual-use dilemma, as a product of the transition from basic to applied research, is a

decisive ideological victory for neoliberal capitalism. Moreover, *ReGenesis*'s solution to this dilemma—to use our evolutionary past to guide us forwards—is a carefully crafted depoliticized strategy. The assertion that we need to start over with a historical *re*-genesis forecloses the possibility of going forwards *differently*. It forecloses the possibility of de-privatizing the medical and pharmaceutical industries, challenging structural inequalities, or redistributing wealth by instituting economic socialism.

The Progressive Era's "Neurotic Cluster" Reimagined

Through its team of scientists, *ReGenesis* reimagines the neurotic genius in the age of the Human Genome Project. In the Progressive Era, intelligence, imagination, and creativity were thought to be biologically linked to the "the nervous diseases" which, according to Freud, included addiction, anxiety, and social maladaptation (3). Since, in the eugenicists' understanding, this cluster of hereditary characteristics could not be separated, their dedication to increasing human intelligence and innovation prompted them to tolerate what they regarded as minor neuroses and dysfunctions among the otherwise mentally fit. In fact, not only did they tolerate these "abnormalities" but they believed that they were the source of extreme creativity and social utility which, properly harnessed, could facilitate cultural progress. In *The New Horizon in Love and Life*, Edith Ellis goes so far as to liken the neurotic genius to a Christ figure and "redeemer" who will bring "glory" to the human race; after all, "the Saviors of the world have been aliens who would not have been asked to sit even on the doorsteps of Respectability" (67). Much like Christ's disciples, Ellis characterizes the eugenicists who understand the "special laws and meaning" concerning the invert's role in the "evolution of the world" as the visionaries who will guide the "discordant note" to his proper place, thereby

achieving harmony. Following in Ellis's footsteps, *ReGenesis* envisions its own team of misfit geniuses as scientific "redeemers" who can "bring glory" to the human race by using genetic science to engender human progress.

Taking us past the keycard scanners and into NorBAC's bustling laboratories, *ReGenesis*'s pilot episode introduces us to its team members as both superbly gifted scientists and incredibly flawed human beings. Their clinical investigations reveal equal parts bioterrorist threats and personal gaffes as they struggle to find the same success in their private lives that they enjoy in their careers. Taken together, NorBAC's team of scientists embody the same characteristics Lewis Terman set out to refute in his five-volume *Genetic Studies of Genius*—the same characteristics he often found himself excusing as part of the "burden of genius." In addition to intervening on behalf of Henry Cowell when he was arrested for sodomy,[64] Terman also wrote letters on behalf of numerous other former subjects when they ran afoul of the law and social custom. For instance, Terman testified in court for Edward Dmytryk when he was arrested in 1923 for running away from home and exhibiting anti-social behavior. Citing Dmytryk's genius as justification for his moral, social, and legal infractions, Terman succeeded in emancipating him from his parents' custody. Like Cowell and Dmytryk, NorBAC's team members routinely struggle to fit into a world that seems ill-suited to their temperaments. Even Caroline, NorBAC's executive director, remarks in season one that "on science, he [David] is brilliant. The rest, I'm not sure." It takes no more than the first few episodes to realize Caroline's statement applies not only to David but to the entire team. From David

[64] For more information, see my discussion of Henry Cowell in Chapter Two (page 147).

admitting, “I suck at being a dad; it’s in the genetics” to Bob confessing, “I’ve never been with a woman” because of “my marked deficiencies in social skills,” it is clear the team member are barely holding their personal lives together. Still, it is not until Jill discloses her anxiety disorder in episode eleven that *ReGenesis*’s characters stop simply being quirky and begin to openly discuss their mental health conditions, all currently or formerly classified in the *Diagnostics and Statistical Manual of Mental Disorders*. Starting with Jill’s early disclosure, *ReGenesis* initiates a series-long dialogue about genetic propensity and the bioethical concerns raised by various treatment options, including biochemical intervention and gene therapy.

Anxiety

Through the mundane example of Jill’s anxiety disorder, *ReGenesis* first introduces some of the biological, social, and ethical concerns raised by scientific theories of genetic predisposition in a way that is eminently relatable. This serves to ground the series in reality before delving into more complex and ethically fraught examples that veer into science fiction. In fact, the symptoms of generalized anxiety disorder have become so culturally familiar that Jill’s condition is revealed first through her symptoms, well before her verbal disclosure. “The Promise” opens with Jill restlessly peering over her lab books with tired eyes, unable to concentrate. Mumbling aloud, she repeats the critiques she received on an article she wrote for the *Journal of Biomedical Investigations,* a publication David refers to as “The Holy Jesus Journal of Genetic Geniuses”—a play on words that invokes both Terman’s *Genetic Studies of Genius* and genius scientists, like Jill, who research human genetics. This allusion reinforces the role of genetics in human intelligence at precisely the moment Jill’s mental illness is revealed,

resurrecting the Progressive Era belief that genius and neurosis are hereditarily linked. As the scene continues, Jill fumbles with her pipettes as she tries to focus on sequencing the smallpox virus. It is a task that should take her only a few hours, but she just can't seem to get started. Wondering what is taking so long, David walks over to Jill's station as the camera trails behind. The distance increases as the camera struggles to navigate around the lab's maze of concrete and Plexiglas architecture. Finally entering Jill's workstation, it pans 180 degrees until finally stopping on her face, framed by a cluttered assortment of lab equipment, papers, and books. The camera's slow speed, the barriers it encounters, and its disorienting, circular movement all work together to mirror her state of mind. "Shit," she says, seeing David pull up a chair. "Uh, ok . . . well, if you just . . . uh, let me." Her voice grows breathier and more flustered with each syllable. David puts a hand on her shoulder, but she jerks it away. "Uh, if . . . give me a sec . . . ." She cups her hand over her mouth and tries frantically to breathe. "I'm a fucking disaster, David!" Her hand shoots back up to cover her mouth, only half stifling a nervous chuckle. The hyperventilating, stammering speech, nervous laughter, and shaking hands all suggest Jill is having a panic attack. The most common mental health condition in the United States, anxiety disorders affect approximately 18% of the adult population (Kessler et al. 617). The symptoms—which *ReGenesis* reinforces through its roving cinematography—are so recognizable that we understand what is going on even before Jill explains it to us.

Moreover, our cultural familiarity with the genetic component of generalized anxiety disorder and its treatment allows us to call to mind the debates, which began in the 1950s, over the effects of psychiatric medications that work by altering the patient's brain chemistry. For over half a century, medical professionals and lay people alike have

debated the diagnosis and treatment of generalized anxiety disorder, clashing over issues of genetic destiny, medicalizing social deviance, marketing "anxiety" for corporate profit, drug safety, and side effects, among others. Jill's example thus provides a common foundation on which *ReGenesis* can build as it introduces progressively more controversial genetic conditions and cures, developed by its own onscreen scientists. In one of the most cited studies which assesses the role of genetic factors in generalized anxiety disorder, John M. Hettema et al. assert that "the best-fitting model predicted that 31.6% (95% CI=24%–39%) of the variance for liability to generalized anxiety disorder was attributable to additive genetics" and that "genes largely explain the familial aggregation" found in a meta-analysis of data from the family and twin studies (1571; 1568). While Jill does not go into her family history in this episode, over the course of the series, we learn that other members of her family also suffer from anxiety and depression. "The Promise" returns to Jill's story line with a deep focus long-shot of her and David walking along the nature trail behind NorBAC, captured from behind a thick, tangled mess of branches. They provide partial cover as she talks, shielding her from the camera while filling the screen with a knotted system of interconnected limbs that resembles a computerized rendering of a brain network. "It started in college. You know, like, feeling like I couldn't get enough air. Feeling like I was gonna have a heart attack. The sweats, the shakes. Feeling like I'm gonna go crazy." Panning to the left, the camera makes its way out of the branches, revealing Jill's face and the little cluster of daisies she has been twirling between her fingers. "I've done all the stuff too, David. I've done cognitive and behavioral therapies. I was on venlafaxine for about a year." The limp flowers disintegrating between her fingers take the brunt of her anxiety. David's hands,

calmly resting in his pockets, provide a sharp contrast. “It [the venlafaxine] helped,” she admits, “but it made my brain dull. Killed my sex drive.” For Jill, these side effects were untenable. The relief the medication provided was not worth the cognitive dullness. As a world-renowned virologist, curbing her ability to do her research effectively curbed her ability to be herself. Jill’s experience is certainly not unique. Introduced by Pfizer in 1993 under the brand name Effexor, venlafaxine has become one of the most commonly prescribed medications for anxiety and depression in the United States, reaching 17.2 million prescriptions in 2007.[65] For many people, medications like venlafaxine bring significant relief from anxiety as well as improved mood, appetite, focus, and sociability. However, like other serotonin-norepinephrine reuptake inhibitors (SNRIs), venlafaxine is associated with a host of side effects including not only mental dullness and a decreased sex drive but also drowsiness, dry mouth, headaches, insomnia, nausea, rapid heartbeat, dizziness, excessive sweating, and changes in appetite (Bymaster et al. 875). The prevalence of prescriptions like venlafaxine enables us to understand Jill’s decision to discontinue her medication without having to actually *see* her experience the drug’s effects. Moreover, by giving Jill a well-known mental health disorder classified in the DSM and treating her with one of the most frequently prescribed medications on the market, *ReGenesi*s gives us a common point of reference before delving into more complex and ethically fraught cases. Embarking on this journey with NorBAC’s team of scientists, viewers are asked to consider the bioethical dilemmas raised as each team

[65] The number of prescriptions was calculated as the total of prescriptions for the corresponding generic and brand-name drugs using data from the charts for generic and brand-name drugs. For more, see: “Drug Topics releases top 200 branded generic drug lists.” *Drug Topics*. 14 June 2011.

member is confronted with their own genetic predispositions and the promise of a genetic cure. Jill's decision is fairly typical and straight forward; she chooses not to use medication and instead relies on behavioral therapy to manage her anxiety. As the seasons progress, however, the decisions become increasingly more difficult to adjudicate until season four takes us into Bob's journey, which ends in an international hearing over human cloning, global pandemics, and genetic genocide in a flash forward to 2043.

Addiction

Following its revelation of Jill's anxiety disorder, *ReGenesis* continues to delve into its characters' private lives and personalities. The long days and nights in the lab facilitate increasingly intimate conversations that often intersect with their active cases. Bob discloses that he has Asperger's Syndrome after making a social blunder with a patient, and Carlos reveals he is gay when his former partner reaches out to NorBAC for medical advice. The only main character who does not make any early admission is David. The signs, however, are eminently readable. His collection of test tubes and beer bottles begin to blend together and, each time his alarm chimes in the morning, his mad dash out from underneath the covers reveals a new, half-nude woman lying beside him. More often than not, it is the model-esque female scientist who was brought in the day before to consult on NorBAC's latest case. But just as soon as the team synthesizes a cure for the genetically-engineered virus *du jour*, she is gone, and David is on to both the next epidemic and the next woman. David's behavior intensifies throughout seasons two and three, culminating in a bizarre series of events, from drunkenly calling NorBAC's chief financial investor a "soggy diaper full of shit" to stabbing himself in the leg to test a potentially dangerous antidote. Yet, it is through Owen, rather than David, that *ReGenesis*

introduces the possibility of a genetic cure for addiction. Owen is a seventeen-year-old runaway from New York who comes to live with David after NorBAC discovers contamination in the subway tunnels where he has been living. Whether it is because he recognizes himself in Owen, he wants to atone for his own parental mistakes, or he simply takes a shine to the young man, David takes Owen in as his charge, signs him up for an outpatient drug dependency program, and begins to offer him an incessant stream of life advice, peppered with tips for picking up women. Despite (or perhaps because of) David's tutelage, Owen succumbs to the charms of a young lady, Ramona, who offers him crystal meth. When Ramona dies of an overdose in Owen's arms, he is arrested and charged with criminal negligence resulting in death. Telling the arresting officer that David is his uncle and legal guardian, they summon David down to the juvenile detention center. In the ensuing episodes, David mounts a legal defense for Owen in which he serves as a medical expert arguing diminished capacity due to a genetic predisposition to drug addiction. Instead of jail, he proposes to the judge that Owen be admitted to an experimental clinical trial that is testing a possible genetic cure.

By supplanting Owen's legal trial with a *genetic* trial, *ReGenesis* takes the form of an agonistic struggle that revolves around the "candidate gene theory" of human behavior. While David and Owen initially start out on the same side, as the story progresses, they come to embody two different scientific approaches to the treatment of addiction: one biological and one behavioral. Much like *The End of the Road* uses Vera and Mary to contrast Victorian sentimentality with eugenic science, *ReGenesis* establishes Owen as a symbol for genetic determinism and David as the neoliberal embodiment of personal responsibility. Unlike *The End of the Road*, however, which

carries a clear perspective message, *ReGenesis* explores several of the problems inherent in both approaches and leaves the decision to the viewer. Still, in presenting the viewer with an "either/or" choice," *ReGenesis* perpetuates the logic of capitalism on which the medicalization of psychology relies. The consumer is given the illusion of freedom by choosing which commodity (treatment) to purchase. Yet, the consumer is not free: *neither* is not an option. In fact, which product the consumer purchases is irrelevant; the capitalist system simply depends upon a purchase being made. Moreover, by occupying the consumer with this false choice, *ReGenesis* obscures the fact that capitalism relies on the same kind of addictive behavior that the cure is meant to eliminate. In fact, the cures's limited efficacy is beneficial since capitalism necessitates that the consumer remain addicted.

In the visiting room at the juvenile detention center, *ReGenesis* uses color, framing, and scale to establish a juxtaposition between Owen and David. Seated across from one another, Owen leans in to explain everything to his mentor. But no sooner does he begin to recount his parents' bouts with addiction than David interrupts him: "Spare me. My dad's an asshole. I'm an asshole, too, but at least I try to be a better asshole okay?" Owen stops talking. His position in front of the barred window, combined with the shallowness of the shot, causes his white tank-top to visually blend with the window pane. The tightness of the frame and the visible grates on the window convey the reality of his confinement. Rising from the table in frustration, David is captured in a wide medium shot. As he stands in front of the large double doors, his forest green sweater picks up the green hues in the door behind him, connecting him to the outside world and the rich trees behind the facility. In a plea to get David to stay, Owen admits: "I try." He

blinks back tears. “I tried fifty fucking times. I’ve been in plenty of drug programs. I was in a summer camp for two months. I was straight as a fucking line of coke. I got out and I cracked. Okay, I’m . . . my life’s fucked.” The opacity of the window, refusing to let in anything of the external world, suggests Owen’s future is equally as impenetrable. “You ever been there?” he asks David. For several seconds, David stares back at Owen but remains silent. He never answers the question, but his face softens as he knocks on the door, alerting the guard that he is ready to leave. The door opens and David steps out into the hall, his own face now situated in front of a nearly identical barred window. The only difference is that its panes are not white but green, the same green as the doors and David’s sweater. This shift to parallel faming says more about whether David has “ever been there” than if he had answered the question directly. Not only has he been there, but he is there right now. The bars are not only literal, keeping Owen in jail; they are also metaphorical, signifying the internal constraints of addiction. The fact that they extend out into the external world suggests that the fetters of David’s addiction will follow him even after he exits the detention center. Both he and Owen have inherited their fathers’ addictive and “asshole” tendencies and it is this tripartite connection—among David, his own father, and Owen—through which David’s addiction unravels over the next five episodes. In fact, that very evening David receives a phone call from his own father that sparks his swift descent into alcoholism, culminating in a drunken meltdown at NorBAC, after which he checks himself in for a 90-day stint in rehab.

Like anxiety disorders, drug and alcohol addiction are among the common conditions that modern Western society has sought to explain and treat. During the Progressive Era, most medical professionals and eugenicists alike believed that the

propensity for addiction was a highly heritable trait. It was not until the familial and twin studies of the 1980s and 1990s, however, that scientists were able to substantiate the claim that addiction involves a genetic component. According to Hall et al., "addiction is a complex disorder which is multifactorial, involving both environmental and genetic influences" (267). Two of the most widely cited studies that have attempted to quantify the genetic component of alcoholism are Midanik et al.'s 1983 paper, published in *Addict Behavior*, which finds that having an alcoholic parent is associated with a fivefold increase in the risk of alcoholism, and Schuckit's study, "An Overview of Genetic Influences in Alcoholism," which uses twin studies to claim that the heritability of alcoholism is between 0.5 to 0.6. These early studies established a substantial genetic basis underlying the predisposition to alcohol and drug addiction, but could not identify the genetic architecture involved. The more recent linkage and association studies[66] take the next step of attempting to identify the specific genes involved in addiction, which they refer to as "candidate genes." In their 2000 essay "The Candidate Gene Approach," Kwon and Goate assert that this approach "directly tests the effects of genetic variants of a potentially contributing gene in an association study . . . as researchers identify potential candidate genes using animal studies or linking them to DNA regions implicated through other analyses" (164). In taking up the results of the candidate gene studies, fiction and non-fiction sources alike have reduced "genetics to two principles: that genes will prevail over any environmental influence, and that even complex traits have simple genetic roots. The result is a kind of genetic predestination," which,

[66] Linkage studies involve a comparison of genomic markers in related individuals while association studies offer comparisons among unrelated individuals.

according to Van Riper, has "often served, in the last decades of the twentieth century, the same dramatic purpose that 'fate' served in earlier centuries" (116). It is precisely this question of whether genetics are "fate" or "predestination" that *ReGenesis* examines over the next several episodes.

In *ReGenesis*, the candidate gene theory is illustrated through the metaphor of poker while the bioethical question of whether a genetic predisposition to addictive behavior makes us less culpable for our actions is staged through Owen's pre-trial hearing. In order to prepare Owen's defense, David asks the team to meet at his apartment to discuss the lab results over a friendly game of Texas Hold 'Em. Seated at his dinner table, the series' well-established locus of bioethical discussions, the team debates the implications of Owen's test results while playing a few hands. To make things a little more interesting, some of the team members, including Carlos, decide to test their own DNA for the 38 "candidate genes" purportedly linked to addiction. Carlos, we find out, has six out of 38 matches. "Now maybe I can quit," he jokes, putting his cigarette out in the ash tray next to his stack of poker chips—exactly six of which are red. Turning from Carlos's results to Owen's, Bob announces that Owen has 32 out of 38 matches. "Holy shit!" David shouts, and then begins to mumble his way through a series of legal arguments and genetic remedies that he could use to help Owen. His racing thoughts, erratic movements, and fixation on dubious strategies all suggest his thinking is irrational—likely a symptom of the empty beer bottles collecting around him. Interrupting David, Jill insists Owen's genes aren't a defense and adds, "You can't cure him, David." She has seen this side of him before. His narcissism often manifests in the irrational belief that he can cure everyone—perhaps a deflection from his inability to cure

himself. In fact, looking around the table, the person whose test results are conspicuously absent are his own. “What, you don’t have any addictions?” Carlos presses David. “Oh just, you know, cigars, booze, hockey, and sex,” David quips. His jocular response carries some truth, but by adding in cigars and hockey he downplays his real addictions to booze and sex. At this point in the series, we don’t know whether he is afraid of the results, he already knows the results, or he is in denial—perhaps all of the above. What we do notice, however, is that David is caught bluffing about his “hand” while sitting in front of a tower of red poker chips.

In Owen’s pre-trial hearing, it is not David’s (dubious) science that is on trial but, rather, the question of whether a genetic predisposition to addictive behavior makes one less culpable for one’s actions. The title of the episode, “The Wild and Innocent,” reflects the argument David presents to the judge: that while Owen’s “wild” behavior has landed him in juvenile detention, he is in fact “innocent” of the charges—not because he didn’t commit the offenses, but because the guilty party is not *him* but *his genes*. Shot from a low angle, David appears large and authoritative as he takes the witness stand as a medical expert. Armed with a series of computerized charts and graphs, David uses his laptop to project them on the court’s movie theatre-sized screen. Against a black background are 38 red and yellow dots. As he explains, yellow indicates a “normal” copy of a particular gene while red represents a predisposition to addictive behavior. The brightly colored circles recall the poker chips from the night before, suggesting that inheriting a certain combination of genes is akin to drawing a particular hand. If the deck is stacked against you, there is nothing you can do about it. Relating this to Owen, David argues:

> Owen is a kid who has a history of drug and alcohol abuse. But so do his parents. And the relevance of that is that recent research is building a very strong argument to suggest a connection between addiction and genetics. Now there are 38 genes that we know of right now associated with addictive behavior . . . the theory is that if you have enough of these genes lined up, you're more likely to become an addict. And this is Owen, 32 out of 38 . . . the average person could pretty easily overcome eight red dots. So, 32 would be like drawing four aces four times in a row. In my opinion, Owen had a genetic destiny to become an addict. His free will barely had a chance.

David's allusion to "aces" and his use of red and yellow dots that look like poker chips work with the scene's color scheme to reinforce the poker metaphor. Positioned next to the witness stand, the Flag of Ontario's bright reds, yellows, blues, and greens round out the remaining colors in a standard set of poker chips. The dark maple of the Judge's bench and courtroom furniture match David's dinner table, on which they played the game the night before. Through this chromatic juxtaposition, the logic of poker and the logic of science become intertwined as David explains the candidate gene theory to the judge.

David's argument, that Owen's family history of alcoholism and his inheritance of 32 "addiction" genes predispose him to addictive behavior, relies on a large body of real-world scientific literature published between the 1980s and the early 2000s. One such study, conducted by Fernandez-Castillo et al., is the most closely linked to Owen's specific case. It is an association study that assess the validity of exactly 38 candidate

genes located in the dopaminergic and serotonergic systems in the brain which have been linked to cocaine addiction, Owen's drug of choice.[67] In their report, Fernandez-Castillo et al. conclude that while many of the candidate genes studied demonstrate only a nominal association, one gene, HTR2A,[68] is strongly associated with cocaine addiction with an odds ratio of 1.72 (39). While many factors play a role in cocaine dependence, their study asserts a clear "association between HTR2A and cocaine dependence," which "supports the involvement of serotoninergic neurotransmission in the genetic component that underlies the predisposition to cocaine addiction" (46). Despite the prominence of candidate gene studies, many scientists have expressed concern about their reliability and have suggested alternative ways of examining the genetic component of addiction. In their paper "Implications of Genome Wide Association Studies for Addiction: Are our *a priori* Assumptions All Wrong?," Hall et al. use a genome wide association approach (GWAS) to refute the candidate gene theory of addiction and offer, instead, an understanding of addiction that considers the human genome in its entirety. The critiques that Hall's team lay out are directly applicable to the Fernandez-Castillo study. First, the results of most candidate gene studies are "at best . . . nominally significant," which Fernandez-Castillo et al. admit is the case with 36 of the 38 candidate genes they tested. "Even for individual genes that are particularly well studied," like HTR2A, Hall's team asserts that "less than half of the studies in the literature identify positive associations. Given that there is well-known bias towards publishing positive results, and against

[67] The test for one of the 38 candidate genes, DRD4, failed, thus leaving only 37 candidate genes for analysis. This is why the study is published under the title: "Association Study of 37 Genes Related to Serotonin and Dopamine Neurotransmission and Neurotrophic Factors in Cocaine Dependence."

[68] The function of HTR2A is to encode one of the receptors for serotonin.

publishing negative results, the actual percentage of positive findings is probably substantially less" (269). Moreover, candidate gene approaches tend to focus on sets of genes based upon *a priori* assumptions about the importance of particular genes in addiction. The assumptions tend to be based on

> the mechanism of action of particular drugs of abuse, e.g. dopamine systems (amphetamine, cocaine, and other stimulants), opioid systems (heroin and other opiates), [and] GABAergic systems (ethanol and benzodiazepines). Candidate genes studies thus examine the association or linkage of dopaminergic system genes with addiction/dependence for cocaine, . . . opioid system genes for opiate addiction/dependence, . . . [and] GABAergic system genes for alcohol dependence. (Hall et al. 268-9)

Though these studies have succeeded in producing some positive associations, these results are the culmination of multiple analyses that assess a variety of markers in different ways. The conclusion is that each individual gene involved likely has, at most, a very small effect.

Beginning in the late 1990s, genome wide association studies (GWAS) for drug addiction emerged using linkage and association studies to determine genes or gene loci associated with drug dependence. One of the most significant findings has been that many of the genes expected, on an *a priori* basis, to be linked with drug addiction are *not* those most consistently identified in GWAS. In many cases, they have been unable to substantiate the results of previous candidate gene studies. However, they have found positive associations with several loci not identified in any previous studies. As Hall et al. report,

> in analyzing the 96 genes in which clusters of positive SNPs were identified in the Liu et al. (2006) study, almost no monoaminergic system genes were found, whereas 28% of the genes associated with drug dependence were cell adhesion molecules, much higher than the overall representation of these genes in the genome. (275)

In other words, the real revelation of GWAS is that the *types* of genes it has identified for drug dependence are part of a class of genes involved in synaptic placidity. This means that addiction may be fundamentally a problem of altered mnemonic processes. This finding is especially noteworthy in the context of "addiction phenomena such as craving and habit that are primarily *conditioned responses* and the evidence for synaptic changes *after* exposure to a variety of classes of addictive drugs" (257; emphasis mine). The genes GWAS have identified are those involved in "adjusting brain 'wiring' either prior to drug experiences or subsequent to drug experiences, or both" (275). The genetic component of addiction therefore may not lie in the candidate genes associated with the addictive drug's mechanism of action (i.e., dopaminergic system genes for cocaine) but, rather, in cell adhesion molecule genes.

Despite these well-founded and well-known concerns about candidate gene studies, in *ReGenesis* the opposing counsel does not challenge the validity of David's scientific argument. Instead, the prosecutor focuses only on the legal ramifications of accepting a diminished capacity defense due to a genetic predisposition to drug addiction. During cross-examination, he asks David two key questions. First, what will stop Owen from re-offending if he is not punished; and, second, if rehabilitation programs are ineffective because they cannot change Owen's genetic composition, then where should

he be placed? David suggests Owen be admitted to a research hospital where doctors can "check his genetic coding, study it, and try to find a way to help him." In effect, David's solution is that Owen become a human guinea pig, the ward of a state-funded research facility. Unless and until his genetic predisposition can be reversed, he will lose his freedom and be expected to submit to experimental treatments. While David presents this option as a preferable alternative to juvenile detention,[69] it recalls the inhumane medical experiments that were carried out on asylum patients in the name of eugenics in the early twentieth century.[70]

Rather than adjudicating the bioethical concerns raised during Owen's pre-trial hearing, *ReGenesis* effectively nullifies them by replacing a discursive, courtroom trial with a genetic one: an experimental trial intended to cure Owen's drug addiction by altering his biochemistry. Taking the bench to deliver her ruling, the judge declares: "The widening gap between the enshrined rules of law and evolutionary rules of science is something that's always bothered me. . . . I have decided science will have its day in court." Yet, like Robbie McCaine (who dies suddenly), Owen never has his case heard in a court of law. Instead, his story line plays out through his participation in a genetic research trial run by Dr. Angelica Starov, one of David's former students. The trial's ultimate scientific failure—which results in Owen's indisputable diminished capacity—

[69] The series never addresses the fact that, as a 17-year-old American citizen, it would be unthinkable for Canada to try Owen without informing or involving his parents in the case.

[70] These early 20th century medical practices have been legislated in numerous court cases, including the Supreme Court decision *Buck v. Bell* (1927), which I discussed in Chapter 1. For information beyond what I presented in my earlier chapters, please see: Black, Edwin. *War Against the Weak: Eugenics and America's Campaign to Create a Master Race.* New York: Dialog Press, 2012.

supplants legal, ethical, and humanistic reasoning by making a courtroom trial moot before the judge can reach a decision.

In the (mis)titled episode "I Dream of Genomes," Dr. Angelica Starov enlists Owen to be her first human subject in an experimental trail that aims to reverse his genetic predisposition to addiction by altering not his genes, but his brain chemistry. As David explains to Owen, "The genes that make you at risk for addiction are still going to be there. We're going to try to undo what they've done to your body chemistry." The treatment relies on switch theory, or the idea that when you become an addict, it is because your brain chemistry has changed; a switch has been turned on. Angelica's treatment seeks to change that chemistry back by going after the dopamine pathway. She inserts a protein that inhibits dopamine beta-hydroxylase in what she calls "the addiction part of the brain." "I do it once," she clarifies, and then "his genes do the work forever." Angelica's focus on the dopamine pathway demonstrates precisely what Hall et al. critique as an "*a priori* assumption about the importance of particular genes in addiction" based on the "mechanism of action of particular drugs of abuse, e.g. dopamine systems (amphetamine, cocaine, and other stimulants)" (268). Despite—or, perhaps, implicated in—the episode's title, it appears Angelica's mistake is that she fails to consider Owen's genome in its entirety. She does not take into account the emerging research provided by GWAS on addiction nor does she treat Owen's body as a complete organic system.

While Angelica's treatment overlooks the connections among the body's many, moving systems, *ReGenesis* uses a combination of narrative, mise-en-scéne, and cinematography to link Owen's and David's addictions together, reestablishing the teenage runaway as a foil for the renowned scientist. Standing at the foot of Owen's bed,

David is positioned in front of one of the hospital's opaque grated windows, saturated in green light emanating from a non-diegetic source. The grated windows, first introduced in the detention center, have begun to follow David, refusing to let us forget his own addiction. As David's descent continues, the frames become progressively tighter and the number of barred surfaces multiply. In this scene, the frame closes in on David's face as he expresses last-minute reservations about Angelica's treatment, warning Owen that it "has not been fully tested." Calling David a "hypocrite," Owen reminds him that he, too, has tried experimental treatments on himself. After all, it was only two episodes earlier that David stabbed himself in the leg with cyanobacteria, a decision likely influenced by the vodka pumping through his veins. As the shot cuts to Owen, the IV pumping fluids into his body visually recalls David's ordeal, providing one last aesthetic association between the men.

David's interrogation of Angelica's genetic trials continues that evening as the former professor and the former student have a rendezvous at his apartment. Their conversation about the science of addiction plays out as David indulges his, further linking his sex addiction to Owen's drug addiction. Pinning Angelica to the kitchen wall, David asks her: "Isn't appetite related to the same neuropathways as addiction?" In the right half of the frame, his fleshy shoulder blends into the cream colored radiator. Its long thin heating tubes are as solid as prison bars, signaling his entrapment. As they move from the kitchen to the bedroom, the transitory lovers volley verbal hypotheses about the ramifications of a genetic approach to treating addiction. "If he can never become addicted, what's to stop him from doing all the drugs he wants to do?" David asks, in between kisses. "People take risks every day," she responds, topping him. "At least it will

be his free choice. Now please, shut up." She presses her hand over David's mouth and, following her lead, the camera zooms in on her, pushing David out of the frame. Confined by his own passion for her, or for sex, David acquiesces. This is not *his* free choice. Still, his questions linger in the air as the scene continues. With the two men's addictions indelibly linked, it appears David is asking these questions not only for Owen, but also for himself.

Despite *ReGenesis*'s many allusions to David's addictions, it is not until Owen is being prepped for surgery that David admits to his own vices and we learn their contrasting treatment decisions: Owen chooses the biological trial while David chooses behavioral therapy. Standing at the foot of Owen's bed, David looks down at his mentee. "I'm going to tell you something, kid. I've got the same genetic predisposition for addiction as you do." The distance between the two men evaporates as the camera cuts to a close-up of Owen, and then alternates between them with increasing speed. With only their faces visible against the hospital's sterile white background, their identifying signifiers as doctor and patient (David's ID badge; Owen's IV and surgical gown) fall out of the frame. "I went right off the rails a little while ago," David admits. "I had to give up drinking, period. It's going to be the hardest thing you've ever done." As David talks, the camera pans to a nurse entering the room, holding a bottle of medicine. The lead room in the left side of the frame draws our eye directly to the bottle. It is the medicine that will, presumably, alter Owen's brain chemistry. Juxtaposing David's words with the image of the bottle, *ReGenesis* suggests choosing a biological cure is the hardest decision Owen will ever make. It is in this way that *ReGenesis* treats Owen's and David's addictions differently. While David admits he too is predisposed to addiction, he never contemplates

taking a genetic cure. The same man who carelessly injects himself with cyanobacteria and at least five other potentially fatal antidotes chooses *not* to take a drug that could cure his predisposition for addiction. Instead, with the help of Carlos, he checks himself into a conventional alcohol rehabilitation center—the same kind of "counseling center" he tells the judge "wouldn't help" if "addiction is in the genes." For Owen, David suggests that his genes are destiny, yet for himself he relies on behavior modification therapy. Certainly, this contradiction is imbued with class privilege. David is a prominent doctor while Owen is a homeless, immigrant youth. With this information, David's argument at Owen's trial reads differently. When he argued that Owen has a "diminished capacity" to comply with treatment, he was overlaying a *genetic* argument onto an *economic* one. It is precisely this kind of logic that underlies early twentieth century eugenic thought. In the Progressives' view, a Lamarckian model of inheritance held that economic disparities were due largely to hereditary differences.[71] Despite David's hubris, *ReGenesis* subtly calls attention to his hypocrisy by demonstrating that despite kicking his alcoholism, he still refuses to acknowledge his sex addiction.

In Owen's final episode, "The God of Commerce," his reliance on a genetic cure for addiction leaves him permanently disabled while David, who chooses behavior modification, achieves sobriety. Spotting Owen in the hospital's upstairs hallway a few days later, David pats him on the back: "You look like shit." Instead of snapping back with a caustic one-liner like "fuck you" or "no, you're the shit face," Owen stares blankly back at him. His skin is pallid, his hands are contorted and shaking, and his face is devoid

[71] For elaboration, please see my discussion about Lamarckian genetics in Chapter 1.

of recognition. Propping him up with both hands, Angelica nudges him: "You're doing great, Owen. Show David how you can walk." Cutting from David's stunned face to a point-of-view shot of Owen walking, the camera zooms in on Owen's white tennis shoes. The large label on the back of the shoes—Sand & Sun™—serves as a harsh reminder of the life Owen has given up. "It's like he's got Parkinson's," David says to Angelica once she has passed Owen off to his physical therapist. "Because it's working!" she exclaims. "The dopamine pathways responsible for his addictive behaviors are shutting down." The camera cuts in to a close-up of David's face. It is red, flush with emotion. "He's a fucking zombie, all right. That used to be a beautifully screwed up teenager!" The tape cuts from a long-shot of Owen, still struggling to walk, to a close-up of Angelica, who is cunningly smiling back at him. Her heavy red lipstick matches the color of her low-cut sweater. The frame closes in on her sharp incisors and the curled tip of her tongue. "Wasn't that the whole problem?" Her overly sexualized appearance transforms her into a Biblical, Eve-esque seductress who, like a serpent, has managed to bite them in the end. Visually and narratively, her character is reframed as a snake oil quack doctor who has stripped Owen of his "beautifully screwed-up" humanity.

It is precisely by outsourcing the cure for addiction to a non-NorBAC team member that *ReGenesis*'s narrative arc is able to unfold as it does. Angelica, the scientist who developed the experimental treatment, is punished while David, who called for the genetic cure, is resolved of responsibility through his paternalistic demonstration of care for the now-disabled Owen. Moreover, by contrasting the two men, *ReGenesis* lauds David, the addict who gained control over his alcoholism through conventional rehabilitation, while illustrating the folly of Owen, who "took the easy way out." David,

like Mary in *The End of the Road* (also a Biblical name), is largely a testament to hard work and social utility. Owen and Vera,[72] on the other hand, represent cautionary tales about the dangers of impulsivity, quick fixes, and scientific quackery. Like Vera, Owen is expendable: diegetically he is of low social status and, non-diegetically, he is a minor character who can remain in the hospital for the remainder of the series. The alluring Angelica is also very much *ReGenesis*'s incarnation of Vera's handsome suitor who seduces her with lofty promises but leaves her with syphilis, a disease which, in 1918, meant a lifetime of disability.

The contrast *ReGenesis* establishes between the disabled Owen and the recovered David suggests that one can be genetically predisposed to addictive behavior *and* use willpower to overcome addiction. Yet, I argue that *ReGenesis*'s message is complicated by several factors: the statistics on relapse, David's lingering sex addiction, and the episode's title. Together, they point to something more complex at work beneath the surface: an insidious economic apparatus that the series refuses to acknowledge explicitly. In spite of David's present recovery, it is well-known that behavioral therapy for alcoholism, like other addictions, is often ineffective long-term. According to the National Institute on Alcohol Abuse and Alcoholism (NIAAA), approximately 90% of patients who receive rehabilitation treatment and achieve recovery will relapse at least once in a four-year-period. Thus, the choice *ReGenesis* gives us—between a biological and a behavioral cure—is a false choice, a choice between two ineffective (yet expensive) scientific treatments. Surely, this is not an oversight but, rather, a de-politicized strategy

[72] Vera, discussed in Chapter 1, is Mary's friend and dramatic foil who does not follow eugenic protocols and contracts syphilis.

for concealing the conditions of its production, since the same capitalist machinery that produces treatments for alcohol dependency also produces commercial television series. Still, Angelica's final comment hints at this economic motivation as she asks, "Wasn't that the whole problem?" She is alluding to the neoliberal tendency to over-diagnose and over-medicate rambunctious children and teenagers for more or less typical acts of adolescent rebellion. It is a gesture towards the way in which postmodern scientists, unlike their Progressive Era counterparts, view science as neither objective nor inherently good; they now assess the quality of specific scientific interventions and their ethical ramifications. Yet, by identifying the problem at the level of *particular* treatments rather than the underlying economic framework of the discipline, *ReGenesis* leaves Owen's and David's false choice intact. In so doing, *ReGenesis* conceals how capitalism thrives on addictive behavior while simultaneously shifting responsibility for that behavior onto individuals. So if we fail at sobriety, it becomes our personal failing. Corporations continue to pedal false cures, making a profit off consumers who will buy the next cure and the next, indefinitely. It is for this reason that capitalism *wants us to stay sick.* Owen and David are both "zombies"; Owen is comatose and David has merely substituted one addiction for another. He may no longer be drinking (for now), but he is still a sex addict, and he is still looking to solve his problems by purchasing more commodities (a gift to win his daughter's forgiveness, clothes to make Owen more comfortable). It is in this way that "The God of Commerce" continues to rule.

The Gay Gene

Like many of *ReGenesis*'s episodes, "Gene in a Bottle" tells two intertwined stories: Jill and Mayko investigate a suicide cluster in the southern United States while

David, Carlos, and Bob secretly work to determine the nature of Harlan's research after his sudden death. Though the two stories never overlap narratively, the women's investigation into the American teenagers who have taken their lives chillingly punctuates the men's discovery of the gay gene. Without having to break the fourth wall, the former story illustrates the potentially devastating consequences of the latter. Notably, "Gene in a Bottle" is the only episode in which NorBAC's team of scientists is divided by gender: the men work on Harlan's research while the women identify the source of the enzyme activator that is leading otherwise healthy people to end their own lives. As the episode progresses and the focus of Harlan's research becomes clear, this gendered division takes on social significance. In a temporary reversal of male/public and female/private spheres, the women carry out the department's assigned cases and serve as the public face of NorBAC while the men remain shrouded in covert sexuality research.

The narrative arc of "Gene in a Bottle" begins with Laura Sendak approaching David at her husband's funeral with a request. Handing him a box of Harlan's lab books and thumb drives, she asks David to analyze Harlan's research and uncover the mysterious project that kept him down in his lab, night after night. Before Harlan died, Laura tells David: "He said what he was working on what could be a potential money maker. He said even millions. If it's related to what Lowie was working on, it's theirs. If not, it's mine." Fearing Lowie will lay claim to Harlan's personal research, Laura insists David keep it secret, even from NorBAC's administration. David accepts Laura's challenge, takes the box of research materials, and arranges for Harlan's lab mice to be delivered.

Starting with its visual representation of Harlan's promoter trap, *ReGenesis* both recalls and reimagines queer history. David enlists Carlos and Bob to help him, and the three men rally at NorBAC. Meeting together behind closed doors, they spread out Harlan's materials, allowing the handwritten notebooks, Manila folders, and piles of miscellaneous paper to consume David's usually tidy desktop surfaces. After a period of silence, the molecular biologist thinks he has something. "He was inserting promoter traps in the mice," David says, pointing to a few lines of scrappy penmanship. "I love how these things work. You drop 'em in and they cozy up to the gene next door and say 'hey baby, show me your goods.'" His voice falls into a feigned baritone and he wiggles closer to Carlos. Taking over David's poor attempt to dramatize the molecular flirtation, the screen splits: the frame he is in shrinks and recedes to the left, making room for a second frame on the right. Against a black background, a computer-generated image emerges. It is a multi-colored strand of DNA (a promoter trap) that rapidly twists itself into a loop, resembling the rainbow awareness ribbon. With a hot pink band spliced in beside the other colors, the promoter trap recalls the original rainbow flag designed by Gilbert Baker in 1978. Assigning meaning to each color, Baker designated the top stripe—hot pink—to represent "sexuality."[73] In resurrecting the long-forgotten pink

[73] In 1977, the influential gay activist Harvey Milk tasked Baker with designing a symbol of pride for the gay community. It has been suggested that Baker may have been inspired by Judy Garland's song "Over the Rainbow" and the Stonewall riots that happened a few days after Garland's death. Another suggestion for the origin of the pride flag is the "Flag of the Races" used to symbolize world peace on college campuses during the 1960s (these flags had five horizontal stripes: red, white, brown, yellow, and black, representing the human races). Baker's flag originally consisted of eight stripes, each of which he assigned a meaning: hot pink= sexuality, red=life, orange=healing, yellow=sunlight, green=nature, turquoise=magic/art, blue=harmony, purple=spirit. The original eight-stripe pride flag flew in the San Francisco Gay Pride Parade on June 25, 1978. Over time, the flag was simplified to six stripes (taking away the hot pink and turquoise bands). For more, see: "Unsung Heroes of the Gay World: Vexillographer Gilbert Baker: The Gay Betsy Ross." *UK Gay News*. 17 April 2008. <http://ukgaynews.org.uk/Archive/08/Apr/1801.htm>.

stripe, *ReGenesis*'s colorful promotor trap foreshadows its purpose in what appears to be a coded message to viewers familiar with queer history. Just as quickly as it curled itself into a ribbon, the promotor trap unfurls into a single strand—a horizontal rainbow—and inserts itself between two other DNA segments. In molecular genetics, the role of a promoter trap is to "trap" or inactivate a particular gene and then assign it a GTST (gene sequencing trap tag) so that it can be easily identified for later use. Assuming the promotor trap's functionality lies in conjunction with the rainbow-colored allusion to "sexuality," the purpose of Harlan's discovery seems clear even before the scientists finish reading his notebooks or replicate his experiments.

"It must be connected to X313!" Carlos adds, pointing out that the bulk of Harlan's research centers on this one particular section of chromosome four which, in *ReGenesis*'s mythology, controls reproductive function. Harlan's experiment, they reason, must have something to do with inactivating a gene involved in reproduction. Bob and Carlos rush down to the lab, agreeing to report back to David once they have run some tests. Snapping on their latex gloves, they get ready to pair the mice. *What is it about their reproductive system that could be a "money maker" when translated into humans?* No sooner do the men examine the labels on the cages than they realize all of Harlan's research mice are male. After a moment of confusion, they reason that Harlan's research must focus on the male reproductive system, so they order a crate of female mice to pair with Harlan's "boys." Holding one of the squirming, male mice upside down, Carlos drops him into a cage with a half-dozen female mice, identified by a hot pink splotch of color on their tails. It's the same color as the band in the graphic representation of the promoter trap, serving as a subliminal reminder of "sexuality" in the

original Pride flag. “Okay, go!” Bob claps, encouraging the little mouse. Building quickly, extra-diegetic music takes over, its lively cadence contrasting sharply with the slow stationary montage. Bob’s and Carlos’s sleepy frozen faces are interspersed with footage of the male mouse burrowing in the corner of the cage, lying down, and then staring back at the scientists, motionless. “He looks like he’s about to take a nap,” Bob says, scrunching his nose.

“I want to try something!” Carlos’s eager confidence is a counterbalance to Bob’s confusion. Again lifting the mouse up by his tail, he drops it into a cage with another one of Harlan’s “boys.” The camera zooms in closer and closer on the cage before cutting in to a close-up of one male mouse mounting the other. In a touch of cinematic symmetry, the active top mouse peers back at the scientists, just as he had in the previous sequence, as if to say: *Now, do you understand?* And they do. Carlos and Bob rush out of the lab and burst into David’s office, breathless. It is Carlos who gets out the words first: “Harlan placed the promoter trap next to a gene. . . . That gene [X313] was the gene that determines sexual preference. . . . I think he had scientific evidence that being gay is genetic.” The discovery of X313’s functionality is thus (re)made and presented by Carlos, *ReGenesis*’s only gay team member. Carlos’s homosexuality, which is hardly remarked upon either prior to this episode or after, here emerges as a plot device. Throughout the remainder of “Gene in a Bottle,” Carlos functions alternately as a native informant, a visual materialization of the millions of men who could be affected by X313, and as a mouthpiece to voice conservative positions that would be poorly received coming from NorBAC’s heterosexual team members.

Carlos's dual role as scientist and scientific object of study recalls the early development of sexology, from Karl Heinrich Ulrichs's conception of the "Uranians" to Dean Hamer's pedigree and linkage analysis on the family histories of gay men. It is Hamer's study that culminated in his 1993 report on Xq28—the report that initiated the cultural phenomenon now known as the "gay gene." Both an acclaimed geneticist and a gay man who lived through the Stonewall riots and the height of the AIDS epidemic, Hamer is keenly interested in finding a genetic basis for homosexuality. With the decline of the rights discourse that dominated the mid-twentieth century, Hamer, like many LGBT activits, has been pursuing a reactionary appeal to science to justify political rights. In the years since publishing his study on Xq28, he has written a full-length book, *The Science of Desire: The Search for the Gay Gene and the Biology of Behavior*, and has discussed his work and its social implications on several television shows, including *Nightline* and *Oprah.* In 2005, he and his partner, Joe Wilson, formed Qwaves, a documentary film production company dedicated to producing "insightful and provocative films that emanate from the voices of those on the outside, that incite us to abandon our comfortable role as spectators, and that compel us to question and to act."[74] Despite Hamer's strong scientific credentials and laudable commitment to advancing civil rights, both the study itself and the essentialist appeal on which it relies are inherently flawed. It is well known that a search for origins is almost always caught up with a desire to destroy those whose origins you seek. It is this recognition that serves as the jumping off point for Eve Kosofsky Sedgwick's *The Epistemology of the Closet*.

[74] <http://qwaves.com/>.

Queer theory, as an academic discipline, developed against the backdrop of the AIDS crisis as a critical reaction against the mainstream desire for queer erasure and the realization that "there currently exists no framework in which to ask about the origins or development of individual gay identity that is not already structured by an implicitly, trans-individual Western project or fantasy of eradicating that identity" (41). Writing in 1990, three years before the publication of Hamer's study, Sedgwick warns us about searching for a biological origin story for gay identity as a way to circumvent cultural attempts at either queer eradication or heterosexual conversion. As she asserts, it is

> problematic to assume that grounding an identity in biology or "essentialist nature" is a stable way of insulating it from social interference. . . . Increasingly it is the conjecture that a particular trait is genetically or biologically based, *not* that it is "only cultural," that seems to trigger an estrus of manipulative fantasy in the technological institutions of the culture. (43)

As she explains it, "a medicalized dream of the prevention of gay bodies seems to be the less visible, far more respectable underside of the AIDS-fueled public dream of their extirpation" (43). In other words, the discovery of a "gay gene" will not ensure political rights but, on the contrary, promises to fulfill the "AIDS-fueled public dream" of eradicating the gay population. But whereas the AIDS virus was messy and resulted in the death of the entire person, this new genetic approach will—under the guise of respectable science—painlessly target only the offending gene. It is in this way that the gay scientist's drive to search for the origin of homosexuality is, at least within our current cultural milieu, a suicidal impulse. As long as our culture is defined by a "desire

that gay people *not b*e," there can be no "conceptual home for a concept of gay origins" (43). Our very existence depends upon maintaining an understanding of gay identity that, like the Progressives' notion of sexual inversion, is multi-faceted and an indelible part of the whole person.

In Hamer's original study, the glaring philosophical problems with the "gay gene" are complemented by a plethora of scientific flaws. In modeling its discovery of X313 after Hamer's report on Xq28, *ReGenesis* replicates many of the real study's theoretical and scientific shortcomings which have since become an enduring part of the gay gene's cultural mythology. An analysis of both Hamer's original study and its correlate in *ReGenesis* reveals that the life of the gay gene, and the essentialist appeal on which it relies, is an ideological byproduct of several forces that have coalesced under neoliberalism: a willful misunderstanding of the determinative role of genes in human behavior, the conflation of truth with profitability, corporate investment in speculative (genetic) futures, and market censorship.

A. The Birth of the Gay Gene

On July 16, 1993, the prestigious peer-reviewed journal *Science* published American geneticist Dean Hamer's study "A Linkage between DNA Markers on the X Chromosome and Male Sexual Orientation," accompanied by a press announcement. The next morning, the Western world woke up to various news outlets from *The Wall Street Journal* to *BBC News* announcing the discovery of the "gay gene." Using a sample size of only 114 families of homosexual men, Hamer et al. performed a pedigree and linkage analysis to investigate the role of genetics in male sexual orientation. He cites as precedent three recent neuroanatomical studies that found differences in brain structure

between homosexual and heterosexual men, most notably neuroscientist Simon LeVay's 1991 article, which reported that homosexual men's brains, like women's brains, had a smaller third interstitial nucleus of the anterior hypothalamus (INAH) (321). These anatomical studies asserted a correlation between male sexual orientation and biological structure, but they were unable to pinpoint a genetic cause. It is here where Hamer's study breaks ground. A leading scientist in the Human Genome Project, Hamer begins his report by asserting that "recent advances in human genome analysis, in particular the development of chromosomal genetic maps that are densely populated with highly polymorphic markers, make it feasible to apply such methods to complex traits, such as sexual orientation, even if these traits are influenced by multiple genes or environmental factors, or some combination of these" (321). After explaining his team's methodology and walking the reader through their experiment, Hamer claims they have "produced evidence that one form of male homosexuality is preferentially transmitted through the maternal side and is genetically linked to chromosomal region Xq28" (325). Hamer's study, like LeVay's before it, has never been replicated. Yet, the mythology of the "gay gene" has taken on a life of its own; it has become materialized not in the scientific laboratory but in our cultural imaginary. Moreover, the reported correlations among male homosexuality, maternal inheritance, and "feminized" biology have attained cultural caché, even as subsequent studies have strongly refuted these findings. One explanation for this is that Hamer's and LeVay's reported correlations are not new but, rather, draw upon earlier ideas about same-sex sexuality that were introduced in the Progressive Era's treatises on sexual inversion.

The concepts underlying the Progressives' accounts of sexual inversion, namely sexual dimorphism and the determining role of heredity in sexual behavior, have re-emerged with the mapping of the human genome as scientists are purporting to find biological and genetic corroboration for these early ideas. A hundred years later, the theory of an "inverted" sexual instinct has been translated into neurobiology's account of sexual dimorphism in the human brain, while the early eugenicists' belief in heredity's determining role in human behavior has morphed into genetic science's invention of the "gay gene." The frequent slippage in the popular press between *biological* studies on brain size, chromosomes, hormones, and biochemistry and *genetics* research on the role of specific genes in sexual behavior has only "help[ed] to give the gay gene a biomedical life" (O'Riordan 364), again re-aligning the complex nexus of ideas which once coalesced in "sexual inversion." Among these ideas are Freud's, Terman's, and Ellis's associations of male sexual inversion with a developmental and/or hereditary link to the mother. In his *Three Essays,* Freud's psychoanalytical explanation of homosexuality asserts that "future inverts, in the earliest years of childhood, pass through a phase of very intense but short-lived fixation to a woman (usually their mother), and that, after leaving this behind, they identify themselves with a woman and take *themselves* as their sexual object" (11; footnote 1). Havelock Ellis, on the other hand, identifies the connection as hereditary, stating in *My Life* that he inherited his mother's nervous excess which, in him, manifests as the "intellectual worker's nervous hyperesthesia" though, in other men, it may manifest as inversion (266). After reaching its height of popularity with the publication of *The Well of Loneliness* in 1928, the model of sexual inversion fell into obscurity as mid-twentieth century social scientists began to understand that gender

identity and sexual orientation exist independently of one another. Even the anecdotal evidence of masculine gay men and feminine lesbians contradicts sexual inversion's underlying premise that homosexuality stems from a cross-gender identification. And yet, LeVay's and Hamer's purported discoveries of "gay brains" and "gay genes" one century later have resurrected the foundational principle of sexual inversion by locating this "inversion" not in our gender presentation but, rather, hidden in our genes or anatomical structures. They assert that there is something about our biology—about our supposedly dimorphically sexed bodies[75]—that predisposes some of us to an "inverted" sexual object choice. Since contemporary social science has disproven the Progressive Era belief that over-bearing or nervous mothers make men homosexual, another reason must be invented—and, in the age of the Human Genome Project, it has become the "gay gene" on chromosomal region Xq28, inherited from the mother. This twenty-first century rewriting of the mother's role in male homosexuality made its pop culture debut at the San Francisco Pride Parade of 1994 in the form of a t-shirt slogan: "Thanks for the genes, Mom!"[76] Since then, this catchy phrase has become a staple on everything from bumper stickers to "inspirational" Facebook memes. It is also replicated in *ReGenesis* as Harlan (a name too similar to Hamer to be coincidental), and then David's team, locate the "gay gene" on chromosomal region X313, classifying male homosexuality as a sex-linked trait passed genetically from mother to son.

[75] For a critique of the assumption of dimorphically sexed bodies, see: Fausto-Sterling, Anne. *Sexing the Body: Gender Politics and the Construction of the Body*. New York: Basic Books, 2000.

[76] T-shirt also cited in O'Riordan, 364.

In the two decades since the publication of Hamer's study, the life of the gay gene has only grown despite numerous challenges regarding its validity. Within the scientific community, Hamer's study has been harshly criticized for its small sample size (114 families), its failure to perform an analogous study of the families of heterosexual men for comparison (a control group), and its selective presentation of data (a 64% correlation is hardly definitive). What is more, in 1999, *Science* published a replication study conducted by Rice et al. which attempted—but failed—to reproduce Hamer's findings, aptly titled: "Male Homosexuality: *Absence* of Linkage to Microsatellite Markers at Xq28" (emphasis mine). In spite of this overwhelming evidence to the contrary, the myth of the gay gene continues to gain momentum. In fact, "the more noise there is about the gay gene, including noise that deconstructs it," O'Riordan argues, "the more its signal strength grows" (362). Even the scientific journals that have published studies like Hamer's have vociferously critiqued how the lay press have misrepresented these reports. In an editorial for *Nature* entitled "Willful public misunderstanding of genetics," John Maddox, the journal's editor, writes that his concern regarding the gay gene controversy

> is neither ethical nor educational, but the tendency of even soberized newspapers to over-dramatize discoveries . . . even a casual reading of [Hamer's] original article will reveal a commendable list of caveats . . . yet the overall effect is to pass off inference as fact, and to conceal the certainty that if there is a genetic component of male homosexuality, its influence will be much more complicated than the simple picture rehearsed in the last few days. (281)

A similar editorial in *New Scientist* laments that each successive "discovery" of the gay gene (and there have been many since 1993)[77] has made front page news and yet "every one has been subsequently withdrawn after further research has disproved the original findings" (3).

The gay gene's unrelenting persistence is not simply the result of media outlets' lack of understanding when it comes to genetic science; it is, as Maddox puts it, a "willful public misunderstanding of genetics," which has its roots in what Sue Curry Jansen refers to as "market censorship." In *Censorship: The Knot that Binds Power and Knowledge,* Jansen argues that with the transition from industrial to information capitalism, "the free press was not crushed, it was sold" (136). News organizations, like all other businesses, are "subservient to the imperatives of profit" (134). The reading and viewing publics that the news once addressed have been "transformed into audiences (markets) for mass communications. These communications [are now] scripted to sell products and a new social order" (136). With a $3 billion budget, the Human Genome Project—and its grounding assumption that genetic explanations can be found for human behavior—is big business. David Miller reports in "Introducing the 'Gay Gene': Media and Scientific Representation" that by 1995, more than thirty of the leading scientists working on the Human Genome Project had already made deals with venture capitalists on the assumption that genetic explanations for undesirable human traits and behaviors could be found and then screened for in utero by (expensive) genetic testing or remedied through (highly profitable) gene therapies or pharmaceuticals. This omnipotent belief in the

[77] Mustanski *et al.* (2005); Ellis *et al.* (2008); Tuck Ngun (2015); among others.

power of genetic determinism is, according to Miller, "underpinned by economic interest and is likely to remain prominent on media agendas for some years to come as more social problems are alleged to be linked to particular 'genes'" (280). Miller's predictions are already proving true. Since the completion of the Human Genome Project in April 2003, venture capitalists' thirst for genetic research has increased exponentially. In 2016 alone, Illumina invested $100 million in venture capital to support research "on new applications of nucleic acid sequencing, genomics product development, and using genomics to improve health," Twist Bioscience received $61 million to develop a semiconductor-based synthetic DNA manufacturing process for gene editing, and Regeneron Pharmaceuticals brought in $75 million to further develop its CRISPR/Cas9 technology for targeted genome editing (Genome Web). The ideologues of new genetics, Hilary Rose argues, "are in a position to command many millions of research dollars and look to the new genetics to solve nothing less than alcoholism, violence, drug taking, criminality and homelessness" (68). The lofty promises offered by the application of molecular biology to human genetics in the twenty-first century strongly recalls the "boundless vista of human betterment" touted by eugenic science in the Progressive Era. The difference is that, in the early twentieth century, the United States government was the largest investor in eugenic science and developed social hygiene programs to freely disseminate eugenic knowledge to the public. Today, private corporations are investing in genetic technologies for the pursuit of personal profit and using intellectual property patents and copyrights to protect their discoveries and limit the circulation of scientific knowledge.

It is precisely this restriction on knowledge and the broader effects of market censorship that have fueled the myth of the gay gene. More specifically, the "willful public misunderstanding" of Hamer's study on genetic marker Xq28—and the oversimplification of genetic science more generally—is a neoliberal embodiment of the growing equation of "'truth' with 'profitability'" under information capitalism (Jansen 134). In other words, the reason that the public, and the news media in particular, "willfully misunderstand" the role of genetics in human behavior is because *it is profitable to do so*. According to Jansen, the use of market mechanisms "to determine the logic or merit of ideas" in the neoliberal economy "reduces ideas to commodities. When this happens the circulation of ideas is determined by their sales profiles. The 'consumer' is described as voting for the products of the *Consciousness Industry*[78] with his or her dollars (consumer sovereignty)," thereby deflecting "attention away from the tightly controlled decision-making processes that actually determine which ideas will gain entry into the commodity system" (134). The result is a form of subterranean censorship based on both market and political considerations that still preserves the illusion of democracy. It *appears* that consumers are shaping the market through their purchase power but, in reality, they are merely responding to pre-determined market trends which reproduce a very particular social order and perpetuate the economic and political domination of the ruling class. Like the pedagogy of public schools in the Progressive Era, the pedagogy of mass culture in the late twentieth and early twenty-first centuries "is a pedagogy of

[78] A concept introduced by Hans Magnus Enzenberger, the Consciousness Industry stands for the mechanisms and institutions (mass media, education, etc.) through which the human mind is reproduced as a social product. It reproduces the status quo, perpetuating the economic and political domination of the ruling class. See: Enzensberger, Hans Mangus. *The Consciousness Industry: On Literature, Politics and the Media*. New York: Continuum Books/Seabury Press, 1974.

psychic oppression. Both forms of instruction use the language of democracy to secure and reproduce hidden curriculums of hierarchical control" because, as Max Horkheimer argues in *Eclipse of Reason*, "the patterns of thought and action that people accept ready-made from the agencies of mass culture act as though they were the ideas of the people themselves" (154). While citizens retain the right to legal redress in cases of libel or slander, there is "no redress (beyond refusal to purchase an offensive publication) if the practices of [news and media] professionals systematically ignore, discredit, or suppress minority views" (133). In the case of the gay gene, it is not so much that minority views are being suppressed (although, certainly, the gay minority has a long history of subjugation) as it is that media outlets routinely misrepresent and sensationalize science in order to kowtow to corporate sponsors, manufacture attention-grabbing headlines, and produce click bait.

The way in which "advertising simplifies and typifies" information (Horkheimer 161) works in tandem with how the concept of the gay gene "simplifies and typifies" scientific research into human sexual behavior, identity, and orientation. The ideological marriage between advertising strategy and reductionist genetics manifests in precisely the kinds of news stories Maddox warns about, stories which continue to populate our newspaper racks, gossip TV shows, and Facebook feeds, like *The Boston Globe*'s "What Makes People Gay? (An Update)" and *The Telegraph*'s "Gay Gene Study Gives No Comfort to Homophobes." Despite mounting evidence to the contrary, the "truth" of the gay gene persists because of its financial and ideological profitability. "The spirit of this type of science, which is built on heterosexist ideology, adherence to the theory of natural selection, the convenience of funding, and the prestige of genetic research," Miller

asserts, has become one which "some scientists actively promote rather than passively follow" (279). Adding to this problem is the fact that both the scientific community and the popular press perpetuate the assumption that the public lacks the technical knowledge necessary to understand and debate both genetic science and editorial decision-making. The press has become the "watchdog" that nobody else is watching. The gay gene has now passed from the news media to the popular media, becoming a cultural trope in songs like punk band The Restart's 2004 hit "Xq28,"[79] novels such as Jeffrey Jude's *Gay Gene Rising* (2011), and numerous films and television shows. In addition to biothrillers like *ReGenesis*, the gay gene provides an episode arc in the legal procedurals like *Century City* and *Law and Order* and is at the center of expectant mother Suzanne's bioethical decision in the dramatic film *The Twilight of the Golds*.

While each of these films and televisions shows examines the social, political, and ethical implications of the gay gene, it is only *ReGenesis* that delves into the nitty gritty science behind it by borrowing heavily from Hamer's report. In addition to locating the gay gene on a region of the X chromosome, David and his team reproduce several of the flaws in Hamer's study as they proceed with human trials: they use an extremely small sample size (only twenty men), they equate gay male genetics with female genetics (the same gene that makes women straight makes men gay), and they fail to investigate whether this chromosomal region (which determines attraction to men) might also determine attraction to women (and thus male bi/heterosexuality or female

[79] Lyrics include: "The building blocks of the soul/Molecular parts that make one whole/X chromosome configuration/Sexual blueprint identification/Genetic profiling from within the womb/Orwellian nightmare leading to doom." This song is also cited in O'Riordan, "The Life of the Gay Gene: From Hypothetical Genetic Marker to Social Reality," 367.

bi/homosexuality). These problems become increasingly apparent to the critical viewer as David, Bob, and Carlos begin to discuss the social, economic, and political repercussions of their findings.

It is not through the science itself but, rather, by questioning the promoter trap's potential profitability, that NorBAC's team members uncover Harlan's plan. Descending the long L-shaped stairway towards NorBAC's main exit, David is plagued by a nagging question. "There's one more thing," he says to his colleagues. "Harlan said this was going to make him rich. Discovering the gay gene might bring you a lot of fame, but not necessarily fortune." "Unless . . ." Bob stammers. "Unless you could find a way to affect the function of that gene." Catching Carlos's eyes, Bob trails off: "ummm…never mind." A visual manifestation of X313, Carlos's tall well-muscled, 6-foot frame forces both his colleagues and the viewer to confront the physical, social, and psychological effects this discovery could have on real human bodies and minds. As long as Carlos's imposing body is in the frame, the men's bioethical discussion about the implications of the gay gene cannot be safely relegated to the realm of the abstract, to the realm of the hypothetical scientific discovery. His body makes the consequences of X313 tangible. His body— his presence— also shapes how the two heterosexual scientists discuss and handle their discovery, beginning with Bob's long pause. In contrast to Carlos's strong commanding body, his words take the form of an apologia. Telling Bob "it's okay," Carlos becomes a proxy for the entire LGBT community, and his permission becomes *all of our* permission. It assures not only Bob and David, but also the presumed heterosexual viewer, that "it's okay" to discuss the social, political, economic, and ethical implications of the "gay gene." Presumably, with Carlos's approval secured, nothing the other

scientists or the viewer says afterwards can be construed as bigoted or homophobic; it is as if Carlos's approval gives them free range to express their views without fear of offending the gay men whose very existence they now hold in their hands—or, rather, in their test tubes. Spurred on by a second nod from Carlos, Bob continues, "Well," he says, still holding Carlos's gaze. "If you got a gene that promotes a certain type of behavior, especially one that's considered undesirable in a lot of places, amongst a lot of people, well, wouldn't you want to see if you can turn that behavior off?" David shuts NorBAC's interior doors behind them and lowers his voice. "A drug! A chemical compound to suppress the gene." Carlos's eyes widen: "I found a patent application for a molecule in Harlan's lab books!" Suddenly, all of the components of Harlan's research come together; he had developed a chemical compound—a synthetic promoter trap—to suppress the expression of X313. In gay men, this drug would effectively suppress their homosexual desire. Harlan was going to patent his pharmaceutical and sell it on the open market. All three men, including Carlos, congratulate one another on successfully recreating Harlan's experiments and confirming his hypothesis.

A few hours later, the three men regroup at David's apartment and agree to share their discovery with Mayko over dinner. Established in the very first episode, David's dinners are as much a part of the *ReGenesis*'s fabric as NorBAC's laboratory experiments, the characters' rapid-fire scientific jargon, and the cinematographic *re*-winding that allows us to go back in time and *re*-live the same few hours in the life of a different character. Like each of the show's principal settings, David's dinner table has a specific function: to serve as *ReGenesis*'s primary locus of socio-political debate. Reworking the familiar trope of the family dinner table discussion, NorBAC's tightknit

team of scientists replaces the traditional, nuclear family unit. David, the team's Chief Scientist and perpetual host, takes the place of the patriarchal father at the head of the table; Mayko, often the only woman,[80] is the sensitive, nurturing, and perpetually helpful "mother" of the team; Bob, Carlos, and the rotating list of minor characters take on the supporting roles, usually occupied by the family's children. In spite of the familiar setting, this particular dinner unfolds somewhat differently than the others. Instead of preparing dinner together in David's kitchen, the gender division continues as the men grill giant lobsters outside on the balcony while Mayko arrives just in time to offer them a drink. It is here, in the safety of David's home, in the company of company of his friends and colleagues, that the socio-political discussion of bioethics begins. "Western society is starting to accept homosexuality," David muses. "It's come a long way. It [the discovery of X313] could set it all back to attitudes of fifty years ago." It is precisely these attitudes of "fifty years ago" that come through, as the men grill outside while Mayko stays inside and rewards them with ice cold beers when they bring in the grilled meat.

On the surface, *ReGenesis* appears to reinforce hegemonic masculinity and traditional gender roles as it sends its usually domesticated male characters outside, arming them with a heavy-duty metal spatula, tongs, and grilling sheers. It is as if these masculine tools will provide the armor necessary for a frank discussion of homosexuality and the gay gene. This reification is partially interrupted, however, by the scene's comedic undertone: it takes three large adult men to supervise one child-size grill, which is so overcrowded that the lobsters are nearly falling off the edges. The sheer size of both

[80] Jill leaves NorBAC at the end of Season Two.

the lobster and the grilling tools appears to be overcompensating *for something else*. The scene's sardonic tone continues until Carlos interrupts David and drops his voice half an octave. Once again, *ReGenesis* tasks Carlos, its only gay and its only Hispanic character, with playing Devil's advocate and voicing a conservative position: "Maybe different parts of the world would appreciate having a choice." With this statement, Carlos draws a distinction between himself—an out, liberal, self-accepting, "progressive," Western gay man—and those gay men from other presumably Non-western, non-liberal, under-developed parts of the world, who might make a different choice. The intimation is that, unlike "Western society," which is "starting to accept homosexuality" by amending its laws, social policies, and cultural attitudes, there are "other parts of the world" that have not yet caught up. As a result, "we" should give "them" the choice of sexual conformity and social cohesion. The fact that Carlos is NorBAC's sole Mexican representative suggests he may not only be referencing "other parts of the world" that are overseas but also countries as nearby as their southern neighbor. Perhaps there was a time in his life, growing up in Mexico, when Carlos would have "appreciated having a choice."

As the scene continues, the study's scientific limitations are compounded by the men's heteronormative assumptions. "Hey! Beer!" Mayko calls, sticking her head out the screen door. Following her into the dining room with the cooked lobster, Bob is the first to tell her about their discovery. "We think we found, well, David's friend found, the gene for sexual preference!" Mayko's eyes widen: "The gay gene?" she asks, hanging her coat on the back of her chair. "No, the gene for sexual preference," Bob corrects her. "If a man gets it, he's more attracted to men. If a woman gets it, she's more attracted to men, too." In this exchange, Bob asserts that mouse gene X313 (and its human correlate) is

"*the* gene" for sexual preference—and yet, by his own explanation, it only determines sexual attraction *to men*. The team never studies whether another chromosomal region on X313 is responsible for regulating sexual attraction to women. Nor is there any indication that suppressing X313 will make men heterosexual (or women gay). It will simply reduce or eliminate their desire for men. In the absence of locating and activating an alternative gene to arouse a sexual desire for women, would Harlan's chemical compound simply leave these formerly homosexual men asexual? Could suppressing this gene in straight women also take away their heterosexuality? Perhaps the reason none of NorBAC's scientists think to ask these questions is because, in contemporary Western culture, attraction to women is thought to be self-evident. Women are the sexual object *par excellence*. Moreover, since heterosexuality is considered normative, there appears to be no explanatory value—or potential front page news story—in locating what could just as easily be called "the straight gene" or "the gene that makes many women heterosexual." The discovery of X313 only stands to make headlines and "millions" if it is marketed, in Mayko's words, as "the gay gene." The linguistic and narrative gymnastics surrounding X313—and its real-world correlate Xq28—is emblematic of the way in which "the processes of scientific discovery are largely rhetorical" (Jansen 187). Citing Peter Brian Medawar in *The Art of the Soluble,* Jansen argues that *"*doing science, like doing journalism or history, involves looking for an interesting story to tell" (187). In fact, the very title of Medawar's book highlights the extent to which science is more akin to an "art," or what he later calls "a dialogue between fact and fancy," than it is to "a story about real life" (*Induction and Intuition in Scientific Thought* 59). Even Bob's early insistence that they refer to X313 as "the gene for sexual preference" rather than the "gay

gene" falls by the wayside after this scene, as NorBAC's team of scientists refer to it later on as both the "gay gene" and the "gene for homosexuality" as they discuss its impact exclusively on homosexual men, the gay rights movement, and the politics of consumer choice.

Like the discourse surrounding the real-world Xq28, *ReGenesis*'s narrative construction of X313 is fallaciously reductive in several ways. It links sexual orientation to a single gene, condenses the entire spectrum of human sexuality into a simplistic dichotomy of either heterosexual or homosexual, assumes gene X313 operates in exactly the same way in everyone who carries it (irrespective of the reality of epigenetics), and gives it only two settings ("on" and "off"). Even more egregiously, it ascribes to patriarchal and heteronormative assumptions by presuming an analogous relationship between male and female sexuality (both are determined by X313) and modeling homosexual men's biology after women's biology (they inherited a "female" gene from their mother). Intrigued only by X313's effects on men, *ReGenesis*'s team works feverishly towards the development of a male pharmaceutical while ignoring the myriad research possibilities X313 presents for women—be they heterosexual, bisexual, lesbian, or otherwise. Presumably, since David's team is unable to envision making a profit from suppressing X313's effect on women, they are entirely left out of the discussion (beyond serving as carriers and the site for X313's normative, or desirable, functionality). In fact, in the first of a series of particularly glaring oversights, David's team conducts a trial with both homosexual and heterosexual men to confirm X313's effect in mice is the same in humans—and, once confirmed, they simply assume it also works this way in human women without conducting a study. No human women are examined before Bob

declares: “If a woman gets it, she’s more attracted to women, too.” Second, given their interest in the possible genetic nature of homosexuality, it is rather astounding that they do not think to investigate whether women who are not attracted to men (lesbians, asexuals, etc.) have a suppressed copy of X313, thereby supporting their hypothesis *in men and women.* Sadly, *ReGenesis*’s striking lack of curiosity about female sexuality mirrors that of the real-world scientific community. That scientists’ investigations into the “gay gene” have been almost exclusively a quest for the gay male gene is indicative of the extent to which Hilary Rose argues that biology is not gender neutral or gender inclusive but, rather, androcentric. Women’s bodies, she argues, are culturally coded as “somehow not normal, so [they] are necessarily excluded from biomedical research” (61). In the case of the gay gene, gay women’s bodies are excluded from the conversation because they are “somehow not normal” or fail to register as sexually desiring bodies, while heterosexual women’s bodies are excluded because they are so normal that they fail to be of interest. Even if NorBAC is unable to see them, like the gay men in “other countries” who, Carlos suggests, “might appreciate having a choice,” are there not also some women, in North America or elsewhere, who might appreciate having the choice to either activate or suppress their own copy of X313? Putting aside momentarily the debate about whether we should have the ability to alter our genes, I want to call attention to the questions that neither *ReGenesis* nor the scientific community are asking: namely, whether there might be consumer demand for suppressing women’s attraction to men or for activating men’s (or women’s) same-sex desires. Certainly, Jansen is correct in asserting that “under information capitalism, information that does not generate a profit will not be produced” (170). This is not, however, a sufficient answer for why these

questions are not being asked. Since "the supplier of commodities now also produces the demand for those commodities" (139), if big pharma could sell a pill to men and women, they would make twice the profit. So why not encourage women to take the pill also? Or why not work to create an analogous pharmaceutical that could activate X313? Following Jansen, "the question is no longer whether power skews knowledge, but how . . . And for whom are the fictions by which we all must live our collective lives most useful?" (189). In both *ReGenesis* and the real world, the myth of an exclusively male gay gene and a form of gene therapy that can suppress it are the most useful for maintaining the hegemonic social order, both culturally and economically. While it might be feasible to employ the logic of capitalism, market privatization, and consumer free choice to sell gay juice or a lesbian lolly, turning homosexuality into an economically profitable pharmaceutical choice would threaten the patriarchal social structure, female sexual subordination, heterosexuality normativity, and the nuclear family unit. And, in a tautological move, if parents were able to screen for the "gay gene" in utero and select for rather than against it, they could potentially dismantle the very structure of the nuclear family on which the logic of parental free choice relies.[81]

B. Gay Babies & Gay-Away

This notion of genetic consumer choice is dramatized later in the scene as David and Carlos each daydream about how publicizing Harlan's research might affect the world. The alternate universes they conjure are constructed by their differing socio-

[81] See Chapter 3, pp. 14-16 for my discussion and critique of the Critical Art Ensemble's thesis that the neoliberal economy and the nuclear family unit are the two key components which will usher in the next eugenic wave in the 21st century.

political positions vis-à-vis the gay gene. In David's dream, he is a conscientious bystander, inserted into a sequence which unfolds according to the plot of *The Twilight of the Golds.* First performed as a Broadway stage play three months after the release of Hamer's article, *The Twilight of the Golds* tells the story of Suzanne Gold-Stein, a woman who finds out during her amniocentesis that her son will be born gay, and subsequently struggles with the decision of whether to terminate the pregnancy. Borrowing heavily from Lois Weber's 1916 film *Where Are My Children?,* the theatrical version of *The Twilight of the Golds* follows Suzanne as she has a late-term abortion, leaving her sterile. In the penultimate scene, a regretful Suzanne, like Weber's Edith, imagines and mourns for the brood of children she might have had—if only she had made a different choice. Capitalizing on the play's critical success, Showtime commissioned a filmic adaptation, which debuted in March 1997 and featured a revised ending. Attempting to reach his audience in a different manner, openly gay playwright and screenwriter Jonathan Tolins concludes his filmic variation with Suzanne making the alternative choice: she has the baby, even at the expense of losing her husband. In spite of its two different endings, *The Twilight of the Golds* leaves both its stage and screen viewers with the same message: there is a right choice. Suzanne, like Edith, should not have the abortion.

Released in the early days of the gay gene hysteria, *The Twilight of the Golds* dramatizes what has since become the most culturally recognizable and oft repeated scenario: What would prospective parents do if they knew their child was going to be born gay? Back in David's kitchen, Mayko's usually taut belly expands before our eyes. Turning to him, she clutches the imaginary baby inside: "We got our test results back.

He's going be a boy. Brown hair, blue eyes, 6'0'' like his daddy. But Mike's having second thoughts. The baby's going to be gay." The plot is so familiar, *ReGenesis* doesn't need to finish playing it out. We can almost hear Mayko and David going back and forth, rehashing the same arguments Suzanne's friends and family members make in both versions of *The Twilight of the Golds*. We can imagine that, in the end, Mayko will recite words much like Suzanne's: *really, it is society that must change*. Even as we see Jennifer Gray's and Jennifer Beals's Suzanne make two different decisions, her thought process remains the same: *she* would love a gay son, but *society* would treat him harshly. The ultimate goal, in her view, is for society to evolve. Through the saccharine scripts of made-for-TV movies like *The Twilight of the Golds* and corporatized diversity training programs like Teaching Tolerance® and Celebrate Diversity®, we have become inculcated to accept the liberal discourse of alternating "tolerance" for and "celebration" of human diversity. We have been taught that we live in a gender neutral, colorblind society that somehow fails to see—yet celebrates—the racial, sexual, religious, and class differences that variously position us in relation to the structuring inequalities that constitute the social order. It is this feel-good message of tolerance and celebration that the filmic adaptation of *The Twilight of the Golds* leaves us with as Suzanne makes the "right" choice. Moreover, through our identification with her, we can presume that we, too, would make the same (in Suzanne's words) "difficult choice." This choice, of course, is only difficult if one does not actually believe the utopian rhetoric the film espouses.

Picking up on the momentum generated by both *The Twilight of the Golds* and the next wave of genetic sexuality studies, the gay gene splices itself into several scripted

television series by providing a trendy narrative arc for their obligatory moral of the week. The same troubling discourse of tolerance and celebration is reworked to fit a (slightly) different account of "gay" fetal genetic screening in two almost identical TV episodes: *Century City*'s "Sweet Child of Mine" (2004) and *Law and Order'*s "Misbegotten" (2008). Both episodes center on a court case in which a fertility doctor is charged with malpractice for failing to inform his clients that their unborn child carries the gay gene. *Century City*, perhaps the more imaginative of the two series, reveals through its lawyers' discovery process that the fertility doctor intentionally withheld this information because he feared that giving parents a choice would lead to the elimination of the homosexual population. Called to testify for the prosecution, George, the father of a gay son (who used the same fertility doctor) admits, while struggling to hold his tears at bay, that if he had known his son Julian carried the gay gene, "it's possible" he and his wife would have selected a different embryo. "But," George continues, interrupting the prosecuting attorney, "I would have been wrong." Slow, instrumental music builds as he shifts his gaze to Julian, now sixteen, sitting in the second row of the courtroom. "Julian, kiddo, if you're not what I expected, it's because I didn't have enough imagination to dream you up." The camera cuts to a female juror wiping a tear from her own eye. "You made me grow," he admits. "And I'm still growing." This episode is the story of a "growing" father, just as much as *The Twilight of the Golds* is the story of a growing mother. The juror's tears serve as silent accolades for the brave straight parent who has come to love and accept his gay son.

As Mayko's belly continues to "grow" before our eyes, it both alludes to these overwrought narratives and marks its departure from them. By asking us to recall this

liberal narrative of tolerance and then interrupt us mid-reverie, *ReGenesis* launches a pointed critique. First, by denying the viewer narrative closure in the form of either David's advice or Mayko's decision, it forces us to actively consider our own decision rather than simply consuming one. Leaving the narrative open-ended also de-emphasizes the importance of the decision while highlighting the importance of the *question*. It is not so much what straight parents decide, as the fact that they are being asked to decide. The question only exists because, contrary to David's assertion, Western society does not "accept homosexuality." Even David's word choice—"accept"—betrays the problematic nature of the discourse surrounding homosexuality in particular and human diversity more broadly. Additionally, by stopping David's dream *in medias res* and cutting to Carlos at the moment the viewer is expecting a decision, *ReGenesis* (at least temporarily) denies David and Mayko the opportunity to become "heroic" heterosexual characters like Suzanne and George and, instead, shifts our attention to Carlos. In so doing, it tacitly critiques how decisions regarding the mythical gay gene—both onscreen and off—tend to take the form of a bioethical debate among various well-meaning straight men and women. Perhaps, the cut suggests, the decision is not really Mayko's or David's to make. Finally, by resituating Carlos as the scene's protagonist, *ReGenesis* asks us to listen to the one voice we rarely hear from: that of the gay man himself. Unlike Julian, Suzanne's unnamed son, and *Law and Order*'s Dean, Carlos is here spared the fate of being the subjected other whose fate is debated by the principal characters. Reframed as a subject in his own right, Carlos is confronted with his own decision.

Moving on from designer babies and parental free choice, Carlos's opposing daydream reworks the liberal narrative of consumerism to pitch pharmaceutical gene

therapy to adult gay men themselves. Sitting on the couch in front of the television while the others prepare dessert, Carlos projects his own narrative onto a routine heartburn commercial. Looking at the TV screen through Carlos's eyes, the blue Letrapsulin label on the pill bottle has been replaced: the big block letters now spell Gay-Away. Holding the bottle up to his face as he looks squarely into the camera, it is as if the smiling blond-haired blue-eyed spokesman is speaking directly to Carlos. "For my homosexual tendencies, I reach for Gay-Away. The dust that makes fairies fly away." With his lyrical voice, animated facial expressions, and invocation of "fairies," the spokesman is the clichéd embodiment of the white, middle-class, North American, gay man. It is his image Carlos is routinely positioned and defined against. Unlike the spokesman, Carlos is Mexican (yet Americanized), Catholic (without being overly religious), hyper-masculine (though still a gentleman), athletic (but not brutish), and easily blends in as "one of the guys" (in fact, he is arguably NorBAC's exemplar of hegemonic masculinity). It is precisely these characteristics that constitute Carlos's "politics of respectability" and make him relatable to a predominantly white heterosexual audience. The politics of respectability has its origins in the black Baptist Women's movement of the Progressive Era, and has since been adapted as a strategy by other racial, ethnic, sexual, and class minorities for accruing cultural capital and accessing social privilege. Introducing the term in *Righteous Discontent*, Evelyn Higginbotham argues that at a time when "crude stereotypes of blacks permeated popular culture and when 'scientific' racism in the form of Social Darwinism prevailed, African Americans' claims of respectability invariably held subversive implications" (188). The concept of respectability signified racial pride, self-esteem, professionalism, and American identity by insisting upon blacks' conformity

to polite manners, industriousness, thrift, temperance, and sexual purity. In so doing, it reflected and reinforced the hegemonic values of white America while also demonstrating "opposition to the social structures and symbolic representations of white supremacy" by providing a counter-narrative to "the politics of prejudice" and the plethora of negative representations of black men and women circulating in literature, film, and popular discourse (195). Not only was the politics of respectability a "bridge discourse" aimed at blacks and whites alike, but it also mediated relations between black and white reformers, uniting them under a Progressive agenda of cultural assimilation, public education initiatives, industriousness, and personal uplift. At times, however, the rhetoric of respectability sounded eerily similar to the racist arguments it sought to contest. The assertion that "'proper' and 'respectable' behavior proved blacks worthy of equal civil and political rights" implied that "nonconformity was the cause of racial inequality and injustice" (203). In "Gene in a Bottle," Carlos uses precisely the kind of "bridge discourse" Higginbotham describes as he presents himself as a "respectable" gay man who has fought for civil rights while also maintaining the conservative position that Harlan's gene therapy might be useful for "other" gay men.

In *ReGenesis,* twentieth century scientific racism is reimagined as scientific heterosexualism, in the form of the "gay gene." And, as the scene progresses, the Progressive Era discourse of respectability becomes a discursive weapon used to legitimize Carlos at precisely the moment he becomes vulnerable to cultural and genetic erasure. He adopts several of the defining characteristics of black Progressive Era respectability as well as others specific to his twenty-first century racial, sexual, and social milieu. He is a properly religious, sexually continent, culturally assimilated,

professional scientist *and* a confident, masculine team-player who avoids making waves or challenging his superiors at NorBAC. In fact, throughout the series, it is Carlos who appears to be the most well-adjusted and who best embodies hegemonic masculinity: he is handsome, sociable, assertive, and athletic, often depicted boxing after work, shirtless, to emphasize his well-defined abdominals. These lengthy, fetishizing shots recall those of the athletic male youths in *Personal Hygiene for Boys*, while Carlos's boxing prowess and personal restraint liken him to Billy Hale in *Fit to Win*. Just as *Fit to Win* framed Billy as the ideal Progressive Era man by contrasting him with his fellow recruits, so *ReGenesis* emphasizes Carlos's eugenic fitness through a series of comparisons with his male colleagues. While David is the Chief Scientist and central protagonist of the series, it is the sociable Carlos whose charm, wit, and diplomacy maintain the team's social cohesion. Every few episodes, the gruff and disagreeable David finds himself in conflict with the others, and it is Carlos who steps in to mediate these disputes. And, in contrast to Bob who, by virtue of his Asperger's Syndrome, struggles to connect with others both socially and romantically, Carlos excels effortlessly. He does not have the sheer number of partners that David does, but Carlos's relationships appear to be deeper and more enduring. Carlos is still friends with his ex-wife and his first male partner, both of whom express nothing but love and admiration for him. Whereas David tends towards misogyny and womanizing, Carlos is appropriately respectful, chivalrous, and sexually restrained, preferring lasting relationships over episode-long flings. When David spirals into alcoholism following the death of his father, it is Carlos who helps him regain his temperance—just as Billy does for Kid McCarthy. In contrast to *Fit to Win*, however, *ReGenesis* allows the homosociality of male athletic physical contact to become overt as

Carlos's boxing lessons with the bisexual Craig become particularly sweaty and sexually charged. The two men ultimately choose not to pursue their attraction further, but this scene from "Sleepers" is instrumental in demonstrating Carlos's boxing prowess and sexual appeal to other men, just as the frequent glances from a rotating list of women demonstrate his heterosexual appeal. Carlos's vigorous good health also stands in contrast to the other characters. Carlos is free from both genetic and contagious diseases, while the heterosexual Wes contracts HIV from a female prostitute and the other team members suffer from a range of genetic disorders while also managing to regularly contract the viruses they are studying. If NorBAC were an actual biotechnology advisory committee, surely it would be shut down due to the sheer carelessness of its employees who accidentally infect themselves with everything from smallpox and super-HIV to encephalitis lethargica and the Spanish flu. It is only Carlos who consistently takes the proper laboratory protocols to protect himself from inadvertent contamination.

Notably, while Carlos's homosexuality is openly discussed in *ReGenesis*, his position as NorBAC's sole representative of Mexico and its only Hispanic team member are not. Throughout the show's four seasons, virtually every single one of the dozens of outside scientists, labs, technology companies, and governmental agencies they work with are Canadian or American; Mexico's partnership in NorBAC is almost entirely absent from the screen except through Carlos's darker skin and slight Mexican accent. Even these visual and auditory markers of Carlos's heritage are ignored, both by the other characters and by the series more broadly. The handful of times that NorBAC's team is dispatched to Mexico, the Mexicans they encounter are the victims of genetically-modified pathogens (or reluctant business owners or officials standing in their way), and

not scientific partners working with the team to control the outbreaks. If anything, Carlos's formal education, fluent English, expensive clothes, and membership in NorBAC align him with his team members and *against* the other men and women from Mexico City. And, once safely back at their headquarters in Ontario, NorBAC's team resumes functioning as normal, never mentioning Mexico again for nineteen more episodes. *ReGenesis*'s NorBAC operates much like the constructed, mythical, "color blind" campus at Cyprus-Rhodes University in the television show *GREEK*, which Alfred Martin Jr. writes about in "TV in Black and Gay." In *GREEK*, Martin argues, fraternity pledge Calvin is "only gay (by his own admission), he is not explicitly black" (64). In 2007 and 2008, Calvin and Carlos were the only two gay men of color who were series regulars on U.S. and Canadian television. Like Calvin, Carlos is also openly gay, but he is not explicitly Mexican or Latino. Other than serving as a translator when NorBAC works with Spanish speaking populations, Carlos's life is virtually devoid of Mexican traditions, and any social struggles, racial conflicts, or cultural differences that he encounters are left off-screen. It is this dissociation from his cultural and racial background that allows Carlos, like Calvin and the dozens of other non-white gay men before them, to have what Darieck Scott identifies as "political, social, and cultural allegiances . . . to 'white' gay politics, to white gay men and to 'white' cultural forms" (300). In *African Americans in the Media,* Catherine Squires argues that "race neutral" characters became a staple in television shows in the 1960s as shows with predominantly white casts began to integrate characters of color into their narratives, promoting assimilation rather than integration (219). Through his successful assimilation into both white and straight American society, Carlos is presented to the viewer as "one of the

good ones," which is confirmed by the acceptance of his colleagues and friends. In fact, with the exception of one ex-boyfriend who turns up in a story arc involving a particularly virulent strand of HIV, Carlos's social affiliations are limited to his heterosexual colleagues at NorBAC, his ex-wife, and the vague mention of "extended family" back in Mexico. It is not until we are confronted with Carlos's face against that of the Gay-Away spokesman that we are forced to consider his divergence from his colleagues and his relationship to the gay community. Through shot/reverse-shot editing, we cut directly from an extreme close-up of the spokesman's blue eyes and pale skin to Carlos's brown eyes and olive skin. Their physical dissimilarity is striking, and yet the shots' identical composition emphasizes the congruent expression in their eyes. They represent vastly different embodiments of a gay man in Western society, and yet they can both be reduced to a single chromosomal region on X313. And, if they choose to take them, the tiny white pills in the medicine bottle will render their lone point of commonality non-existent. At once, Carlos and the spokesman are profoundly different and profoundly the same. Additionally, the naming of the product (Gay-Away) and the commercial's narrative arc again signal the gaping holes in the men's research and knowledge about our genes' involvement in shaping our sexual orientation. The pills may silence X313, but they make no claim to turn the men heterosexual; they simply "take the Gay-Away."

As the men's juxtaposing daydreams reveal, for David the discovery of X313 centers on a host of societal questions about the bioethical implications of genetic engineering and parental free choice while, for Carlos, it is about the personal decision of adult gay men, including himself. Despite Carlos's claim that it is men in "other parts of

the world" who might appreciate having a choice because of legal sanctions, societal prejudice, and familial ostracism, this commercial is clearly a Western once, aimed at a North American audience. It is a white, blond-haired, blue-eyed spokesman pitching the pill in English on Canadian television. And, as their eyes meet through shot/reverse-shot editing, it appears he is pitching his product directly to Carlos. In this moment of privacy, away from his friends and colleagues, would Carlos choose to take "the dust" that sends the "Gay-Away?" Like David's daydream, Carlos's ends before any decision is made. The film cuts, and the pill bottle once again says Letrapsulin. It is therefore up to the identifying viewer to imagine Carlos's decision—or their own. Unlike David's daydream that replicates the plot of *The Twilight of the Golds*, there is no televisual or filmic precedent for Carlos's choice. We cannot simply plug in the decision of a previous character like Suzanne. *ReGenesis* thus leaves us with additional work. Not only does it deny us the pleasure of narrative closure, but it forces us to focus on the question—and the social, political, and economic factors which have enabled it. The fact that Carlos's daydream takes this form is more telling about his experience as a gay man in North America than whether or not he would ultimately choose to take the pills. Being confronted with this reality leaves the viewer heavy, as he or she must hold on to the nagging, uncomfortable question. This is far more powerful than concluding Carlos's daydream, or the episode, with a liberal narrative of self-acceptance like that employed by many other TV series and films, including *Fantastic Mr. Fox*, discussed by Jack Halberstam,[82] which ends with Ash, the effeminate fox, happily sipping a grape juice box

[82] For more, see: Halberstam, Judith. *The Queer Art of Failure.* Durham: Duke University Press, 2011, pp. 182-185.

while everyone else sips apple. Certainly, *ReGenesis* could show Carlos changing the channel or dumping the bottle of pills down the drain, but doing so would let the viewer off the hook.

Rejoining Carlos in the living room with their bowls of ice cream, Bob, Mayko, and David continue their discussion about what to do with Harlan's research. "Does the world really need a cure for homosexuality?" Mayko asks, looking directly at Carlos. "Is it a disease?" Carlos asks rhetorically, staring back at her. But rather than rehashing this century-long debate, David tells them, "We're asking the wrong questions here. Take the guys who built the bomb. The question was never *should* they build it. They had to. It was either them or the Nazis. What kept them up at night was who's going to build it first and what's going to be done with it. So what are *we* going do with *our* bomb guys?" The scene ends with a long close-up of David, his dirty blond hair and blue eyes resembling those of the spokesman in the Gay-Away commercial. In giving David the final word in this scene and lingering on his furrowed brow, *ReGenesis* does precisely what it refused to do during David's daydream when it cut to Carlos at the moment of decision-making. And, like *The Twilight of the Golds*, *Century City*, and *Law and Order*, *ReGenesis* locates the series' well-meaning white heterosexual protagonist as the one who must make the decision.

C. The Dual-Use Dilemma

David's allusion to the scientists who built the atomic bomb initiates *ReGenesis*'s exploration of the dual-use dilemma. For those familiar with the men behind the Manhattan project, it also foreshadows David's eventual decision as he travels precisely the same path as Leó Szilárd, the physicist who discovered the nuclear chain reaction in

1933. Throughout, David's reasoning also mirrors of that of Szilárd's colleague, Richard Feynman, whom I quoted at the outset of this chapter. Continuing his analogy about the keys to the gates of heaven and hell, Feynman writes:

> we do not have any instructions as to which is which gate. Shall we throw away the key and never have a way to enter the gates of heaven? Or shall we struggle with the problem of which is the best way to use the key? That is, of course, a very serious question, but I think that we cannot deny the value of the key to the gates of heaven. (qtd. in Selgelid 36)

As I suggested in my introduction, I believe Feynman is taking the gates of heaven for granted, and it is this assumption that leads him to ask the wrong question. Against Feynman, I argue that we should critique "the value of the gates of heaven." We should stop quarreling over "the best way to use the key" and, instead, interrogate that impulse within each of us that *wants* to use the key. Why are we drawn to it and what does this tell us about ourselves and our society? In this section, I will do precisely this: I will probe our fascination with the "gates of heaven" by examining the ways in which the dual-use dilemma is being articulated in both *ReGenesis* and real-world scientific journals. Then, in my final section, I will ask the question with which I began this chapter: What possibilities are being foreclosed when we use the model of the dual-use dilemma to theorize the role of science in society?

With recent advances in genetics and molecular biology which have enabled the possibility of genetically-engineered bioweapons, twenty-first century scientists have been tasked with the question of how to both conduct and regulate this new field of research. But rather than approaching it as something new, scientists and bioethicists

including Michael Selgelid and Ben Dulken—like *ReGenesis*'s David—suggest that we look backwards for answers. Treating the theoretical "genetic bomb" as a reincarnation of the atomic bomb, they look to Feynman, Szilárd, Robert Oppeheimer, and the other scientists involved in nuclear weapons development in the 1930s and 1940s to help guide them forwards. But in contrast with nuclear weapons, which were largely developed in secrecy and have a long history of governmental classification, the life sciences has been an open and public discipline since its inception in the Progressive Era. It is this accessibility which is now under review. Since 9/11, various groups within both scientific and governmental communities have been pushing for the censorship of any scientific discovery that might enable terrorists to develop bioweapons. Just in the last five years, *The New York Times*, along with peer-reviewed scientific and bioethical journals including *Science, Nature, The Hastings Center Report*, and the *International Journal of Cross-Cultural Studies and Environmental Communication,* have each published articles on the topic of scientific censorship. While the authors envision the process of review differently, they each concede that there are at least some instances when the benefits of national health, safety, and ethics outweigh the publication of scientific discoveries. Their arguments also rely on a model of applied research. In each case, they use the intended purpose of the scientific discovery to determine the strength of the claim for publication, and the ease with which this research can be used to fulfill a nefarious purpose to assess the opposing case for censorship.

This reasoning marks a notable divergence from the arguments both for and against the censorship of science that dominated from antiquity through the early twentieth century. Then, the question of censorship focused primarily on the state's and

the church's censorship of information, speech, literature, art, and other cultural forms. Many of the contemporary essays on censorship thus begin by alerting the reader to how censorship is routinely practiced today, even in countries like the United States which guarantee certain freedoms under the Bill of Rights. This acknowledgement is necessary to puncture the popular belief that the Western world eradicated censorship a century ago when it removed the stamps of church and state censors, including those imposed on films like *The End of the Road* and *Fit to Win*. Far from being abolished, censorship in liberal societies has merely taken on a new form. Jansen argues that in the late twentieth and early twenty-first centuries, Enlightenment thought "transferred the office of Censor from a civic to a private trust" and "replaced church and state censorships with market censorship" (4). Enlightenment values have been reworked under late capitalism to support the neoliberal imperative: free expression has become free trade, radical individualism has become the pursuit of personal profit, the separation of church and state has become the separation of private and public spheres, and the paternalistic attitude towards "the people" has become justification for "experts" to exert control over the dissemination of knowledge. This form of market censorship "is sustained by socially structured silences which continue to privilege the voices and interests of some citizens at the expense of others," producing an "oligarchy of mind" that supports a particular construction of social reality (9; 137). In the age of the Human Genome Project, our social reality is structured by a series of beliefs—that we are on a continuous journey towards human betterment, that genes play a determining role in human behavior, and that parents and consumers have the unalienable right to exercise free choice in genetic selection. The Consciousness Industry's beliefs are reinforced as the process of market

censorship continues to deny citizens participation in political debates and decision-making processes "by fostering the impression that many public issues [and scientific discoveries] are inherently too complex for lay people to comprehend or debate competently" (204). Decisions are thus left to the professionals—like Dean Hamer, Leó Szilárd, and David Sandstrom—who are deeply influenced by corporate interests (like *ReGenesis*'s ADI and its subsidiary, Lowie Pharmaceuticals). It is in this way that market censorship is changing the production and dissemination of knowledge. Under information capitalism, knowledge joins human labor as a key source of surplus value. From the beginning of the Industrial Revolution through the early twentieth century, the chief economic conflict was between the owners of the means of production and the wage workers whose labor they exploited to generate surplus value, as outlined in Marx's labor theory of value in *Capital: Volume One*. With the shift from industrial to information capitalism in the late twentieth century, Jansen argues that

> access to control over knowledge becomes a [second] source of surplus value as well as a potential site of social conflict. Within this new order, knowledge is no longer simply a means or resource used in the production of commodities, it also becomes a commodity. It becomes "cultural capital." As a result, the source of profit is not "the theft of labor time" but rather the private appropriation of "accumulated social knowledge." (168)

We are no longer living under the classic liberal model of democracy, which was "premised upon the assumption that knowledge is a social resource, a public utility, or a collective good" and ensured the "free entry of diverse ideas into a public marketplace which is open to all citizens/shoppers who seek knowledge" (167). A marketplace of

ideas that conceives of knowledge as public cannot turn a profit, since knowledge is not a resource that can be depleted like oil, steel, or milk. Once knowledge is produced, it can be copied, plagiarized, or pirated. Information brokers thus have a vested interest in keeping information secret. John Stuart Mill's vision of a "free marketplace of ideas" is replaced under corporate capitalism by a marketplace of ideas that functions as a private enterprise, serving only those who can afford to pay the price. Publication copyrights and intellectual property patents have emerged as two powerful tools for preventing the free flow of information and safeguarding capital investments.

It is in the publication and patenting of scientific discoveries that marketplace censorship encounters the dual-use dilemma. The censorship of science through either permitting or withholding publication and patent rights diverges from traditional forms of state and church censorship regarding scientific information in that its interests are tied to national security and corporate profit rather than religion or morality. In the Progressive Era, the state's and church's censorship of science was connected to the religious purity movement and focused primarily on books, films, and other materials that taught evolution and sex education. Even today, many public school districts in the United States require that creationism be taught side-by-side with evolution while omitting information on birth control, abortion, and homosexuality from sex education courses. Responding instead to the concern that scientific information designed to improve health care, diagnostic testing, and gene therapy could be used to create genetically-engineered bioweapons, the authors writing in *Science*, *Nature*, *The Hastings Center Report*, and the *International Journal of Cross-Cultural Studies and Environmental Communication* examine the dual-use dilemma and the ways in which it is informed by market pressures.

In perhaps the most comprehensive of these articles, Michael J. Selgelid provides a brief overview of both sides of the scientific censorship debate through an examination of two recently published case studies: (1) Ron Jackson et al.'s genetically engineered, antibiotic-resistant strain of mousepox and (2) Jeronimo Cello et al.'s construction of a synthetic polio genome, resulting in a "live" virus. Focusing on a rather narrow understanding of biowarfare as the creation of genetically-engineered infectious diseases in "A Tale of Two Studies: Ethics, Bioterrorism, and the Censorship of Science," Selgelid articulates the two opposing sides as follows. First, those who oppose the censorship of science frequently ventriloquize Feynman's sentiments about the importance of the "key to the gates of heaven." They believe that "knowledge is good in itself and that both freedom of inquiry and the free sharing of information are essential to the purity and progress of science" (36). The very same scientific developments that could lead to biological weapons could also lead to medical breakthroughs such as the isolation of gene function, cures for diseases, innovations in method and technique, and so on. Those benefits, they argue, outweigh the potential risks. Additionally, publishing studies that carry such risks—like those on mousepox and the synthetic polio genome—also do the important work of informing the scientific community about potential threats and enable both independent and governmental scientists to make the necessary biodefense preparations (38). On the other hand, those who support scientific censorship in certain cases argue that publishing these studies not only alerts potential bioterrorists to new forms of biological weapons but also "gives them explicit instructions to produce them" (35). At the very least, they assert, the materials and methods sections in these cases should be omitted. The problem with this form of censorship, of course, is that in

order to be taken credibly, scientific experiments need to be subject to independent verification and replication. Still, they argue that since the manufacture of bioweapons is "relatively easy and inexpensive, especially when compared with nuclear weapons," censorship may even be more important in the field of genetic engineering than in nuclear science (37). Rather than tethering himself exclusively to one camp or the other, Selgelid takes a middle position. While he believes that both the mousepox and polio studies should be published, he acknowledges that "there are at least imaginable cases where censorship would be justified" (36). He then goes on to explain why, in his view, the existing infrastructure is insufficient and we need new protocols for scientific review and censorship.

Following the post-9/11 weaponization of anthrax and its dissemination via the U.S. postal system, the United States's National Research Council (NRC) issued a 2003 report entitled *Biotechnology Research in an Age of Terrorism*, which proposed creating an advisory board to review scientific articles and advise authors and journal editors on whether their publications might pose a risk to national security. The following year, the National Science Advisory Board for Biosecurity (NSABB) was established under the mission of providing "advice, guidance, and leadership regarding biosecurity oversight of dual use research, defined as biological research with legitimate scientific purpose that may be misused to pose a biological threat to public health and/or national security" (NSABB). Far from resolving the issue of scientific censorship and providing an effective process of review, the Board has spurred further controversy over its perceived inadequacies and looms as a central figure in several of the articles on scientific censorship. For Selgelid, the two main problems with the NSABB are that its review

process is voluntary and its decisions are not binding. “Because scientists are usually not security experts, and because they usually lack classified information required to assess the publication risks in cases like the mousepox study,” Selgelid argues, “we cannot rely on the scientific community’s voluntary self-governance” (36). Ben Dulken’s concerns about the NSABB take an entirely different form in “Censoring Science: A Comparative Analysis of Two Examples of Scientific Censorship and their Ethical Ramifications.” While he applauds the NSABB’s handling (and censorship) of a scientific report on a mutation of the deadly H1N1virus, he argues that the board is not necessarily equipped to handle other cases that “could breach ethical boundaries” (66). Scientists, he argues, are not necessarily “attuned to the delicate matters of social, ethical, or national concern which may be very relevant to the public” (68).

In light of these problems with the NSABB, Selgelid and Dulken each propose an alternative process of review that could either replace or co-exist with the NSABB. Since government officials “are likely to have values biased in favor of security over the publication of science” and “scientists are likely to be biased in favor of the promotion of science over security,” Selgelid proposes that either a uniquely qualified individual, a “dual-use science censorship tsar,” or a “panel comprised of both government and civilian scientists and security experts” be established to hear cases (41). Implicitly invoking the problem of market pressures, Selgelid elaborates that scientists are often pushed to publish their research, in spite of potential security risks, in order to secure academic tenure or lucrative research positions, compete for grants, and receive university or corporate funding. Government agencies, on the other hand, are likely to withhold publication in order to control sensitive information, allowing governmental

scientists rather than independent researchers to work on developing potential cures, vaccines, or treatments for possible biological weapons. It is only by having both groups work together on an advisory board, he argues, that we can best combat these competing market pressures. Finally, Selgelid asserts, the referral of problematic cases should be mandatory, and the board's decisions must be binding. In contrast, Dulken argues that "the first requirement for a censoring party is that it must in fact be composed of multiple individuals" (72). Insisting on an interdisciplinary approach, he proposes a board not only of government officials and scientists but a host of other experts including policy and economics specialists with the "depth and breadth of knowledge necessary to make such assessments" regarding the publication of scientific reports (72). While certainly the creation of an interdisciplinary board seems more productive than an individual "censorship tsar," both Selgelid's and Dulken's proposals break down logistically as they fail to lay out any procedure for either case referral or legal enforcement of the board's decisions. Even more problematically, like the NSABB, both Selgelid's and Dulken's proposed boards are designed only to review the publication of scientific studies in peer-reviewed journals. Their jurisdiction does not extend to the granting of patents, copyrights, or other legal avenues, which also typically include the publication and dissemination of scientific discoveries in the form of intellectual property.

Looking past these logistical problems, what is even more troublesome is that by focusing their attention exclusively on scientific censorship, they are obfuscating the issue of how the research is being conducted in the first place and the motivations and infrastructure behind it. For instance, while Selgelid does gesture to the academic pressure to publish, he fails to probe any deeper. He fails to critique the model of applied

research on which so much academic, corporate, and governmental studies are conducted. In applied research, all scientific inquiry is directed towards a stated purpose and, with the increasing intrusion of capitalism into the life sciences, that purpose boils down to the profit motive. As we have seen in this chapter, X313 becomes the "gay gene" (rather than the "straight gene" or the "gene for sexual attraction to men") because it only becomes a purposeful discovery if it can be tied to a marketable pharmaceutical. While we might understand *ReGenesis*'s discovery of a promotor trap that silences X313 as a step towards Feynman's "gates of hell," even his idea of the "gates of heaven" is predicated on two assumptions. First, any idea of reaching the "gates of heaven" by achieving human advancement necessitates that we make sacrifices in the here and now for the there and then. We cease being responsible to ourselves in the present, and it becomes our mandate to live for the future, either for our future selves or for those who will be alive then. Second, achieving human advancement under neoliberal capitalism amounts to a series of successive purchases: scientific knowledge, genetic enhancements, goods and services, and so forth. Each "advancement" is, in essence, a commodity and our progress towards perfection becomes synonymous with our purchase power. When understood in this way, the "gates of heaven" cease to be an absolute good and, instead, become much less discernable from the "gates of hell." So, instead of following those, like Selgelid and Dulken, who want to use scientific censorship as an *ex post facto* response, I argue that we should intervene in market pressures directly by targeting the institutional structures that determine which research gets done in the first place and how it is carried out. Our energy would be better spent attempting to liberate science from the imperative of being easily translatable into a manufacturable commodity. While some forms of applied

research are no doubt useful and, in fact, antithethical to the capitalist bottom line—such as cures for truly debilitating (rather than socially constructed) diseases and sustainable sources of energy— we should also reinvest in the model of basic research which is increasingly losing out on funding in favor of research that promises to produce a shiny new patent or pharmaceutical. The very fact that our scientists and bioethicists are sidestepping these underlying questions in order to debate the *ex post facto* censorship of scientific results is an ideological victory for neoliberal capitalism. The dual-use dilemma is nothing more than a distraction from the structuring logics of capitalism at work beneath the surface.

In deciding what to do with "their bomb," *ReGenesis*'s team of scientists do not voluntarily submit their reports to the NSABB, to the government of any of NorBAC's member countries (the United States, Canada, and Mexico), or to any other scientific advisory board or council. In fact, before the team can agree on any decision, Caroline, the Executive Director of NorBAC, confronts David in his office about his "mystery project." "I just got a phone call," she says, standing above him while David remains seated at his desk. "Harlan Sendak was doing some work for Lowie Pharmaceuticals and they just filed an injunction saying we, NorBAC, are not releasing research that belongs to them." In the absence of Lowie, it is Caroline who stands in for corporate interests. The high angle of the shot enlarges her petite frame, emphasizing her authority as she speaks on behalf of both NorBAC and Lowie. David begins to make excuses, but Caroline cuts him off, pointing out that NorBAC has a $35 million agreement with Lowie. If David does not give them Harlan's research, NorBAC stands to lose one of its primary financial backers. David rises from his chair. "It's not theirs," he shouts, staring

directly into her eyes. Caroline matches his gaze. “Then let them determine that. . . . And next time you work on an outside case, you find a cure for the common cold, you buy a pencil, I want to know about it!” She shoves him with the left side of her body on her way out the door. As the camera zooms out, David is left standing in the northeast corner of his office. Both literally and physically, she has backed him into a corner.

Leaving NorBAC that evening, David is determined to find a way around Caroline’s ultimatum. Harlan’s work does not belong to Lowie and yet, he knows that “if we give this research to Lowie, they’re going to find a way to make it their own.” David works through the night, although it is not until a few days later that we learn his solution. Meeting Laura at her house, David takes a seat next to her on the sofa and pulls a blue folder out of his messenger bag. It’s the same blue as the label on the Gay-Away bottle in Carlos’ daydream. “It belongs to you now,” he says, handing Laura the folder. “It’s a patent for the gene he discovered and a compound that will turn it off.” Flipping through the pages, David explains that he got a friend in the patent office to fast track the applications and she now owns her husband’s intellectual property. “You can go to Lowie on your own terms if you want to. Could be worth millions.” David’s decision to pursue intellectual property patents—rather than publish the findings in scientific journal, hand everything over to Lowie, or destroy the research—recalls the decisions of both Leó Szilárd and David Hamer. The Jewish, Hungarian-born Szilárd moved to Germany in 1919 to attend the Institute of Technology in Berlin, where he subsequently worked on the nuclear reactor, linear acceleration, and electron microscopes. When Hitler rose to power in 1933, Szilárd quietly fled to London to continue his research. On July 4, 1934, the same day Marie Curie died from radiation poisoning, Szilárd received British patent

630,726 for his nuclear chain reaction (made possible by Curie's earlier work with radium). Strongly believing his discovery should be kept secret, Szilárd signed his patent over to the British Admiralty so that it could be covered by the U.K.'s Official Secrets Act (L'Annunziata 240). Szilárd's desire for secrecy ended, however, when a similar discovery was published in France by Irène and Frédéric Joliot-Curie, the daughter and son-in-law of Marie Curie. Sixty years later, when Hamer was confronted by journalists about the bioethical implications of Xq28, he responded by saying he would "patent any gay gene so that it could not be misused" (Miller 278). As Hilary Rose points out, Hamer's claim that he would patent Xq28 "is a naïve approach, since patents do not apply outside the country in which they are taken out" (278; footnote 49).

Since we never hear of Harlan's research after the events in "Gene in a Bottle," we can presume that Laura does not go to Lowie (or any other biotechnology company) to exercise her patents and manufacture a drug like Gay-Away. By dropping the gay gene story line, *ReGenesis* again takes a page from Hamer's playbook at the expense of real-world patent law. [83] Even before David arrives at Laura's house with the patents, one

[83] While *Orphan Black's* Neolution was able to patent the clones' synthetic DNA because of the degree of human intervention involved, *ReGenesis'* David patents not only the man-made compound that silences X313, but also the naturally-occurring gene itself. Even though David does not state which country has granted the patents, the fact that Harlan was a Canadian scientist and NorBAC is located in Ontario suggests they are most likely Canadian patents. When "Gene in a Bottle*"* aired in 2007, isolated gene patents were still legal in most countries. Since then, the United States has stopped issuing isolated gene patents (following the precedent established in *Myriad*), as have other countries including Mexico and Australia. As of 2017, however, patenting an isolated gene like X313 is still legal in Canada, China, Japan, and the European Union. In some of these jurisdictions, it is the industrial application of the chemical compound that suppresses X313 which makes the gene itself patentable since "biological material, whether isolated or produced by means of a technical process, is patent eligible even if it previously occurred in nature provided its industrial application is disclosed in its patent application" (1). In Canada, however, the gene is eligible for patent protection even without demonstrating any industrial application. Following the March 2016 settlement between the Children's Hospital of Eastern Ontario (CHEO) and Transgenomic, Inc., the Intellectual Property Law Firm Bereskin and Parr, LLC reports that "because the case settled without a determination of the subject matter patent-eligibility of genes . . . Isolated gene patents remain available through the Canadian Intellectual Property Office, which considers isolated genes to be a

would imagine something as controversial as the "gay gene" would become front-page news throughout the world, much like Hamer's published report on Xq28 in 1993. Moreover, since there is no such thing as an international patent (Yale Office of Cooperative Research), Laura's patents do not extend beyond the country in which they are issued. So, once published, information about gene X313 would become public, and countries like the United States, China, Japan, Australia, and the members of the European Union could begin manufacturing Gay-Away without infringement. The only possible alternative is if Laura approached the Canadian government—or vice versa—and asked that these patents be kept secret. Much like the U.K.'s Official Secrets Act and the United States' Invention Secrecy Act of 1951, the Canadian Security of Information Act allows the Minister of National Defense to seize control of innovative ideas and technologies that "could be a risk to national security if this information was made available to the public," or individual inventors can apply for protection if they believe their discoveries will pose a threat if made public.[84] Even so, the example of Irène and Frédéric Joliot-Curie patenting a discovery akin to Szilárd's in France attests to the near impossibility of maintaining the secrecy of scientific discoveries on an international level.

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patentable category of invention" (1). Moreover, "since the CHEO case has petered out short of trial, there is no such subject-matter eligibility case on the horizon to revisit the patenting of isolated genes (1). Prior to the CHEO case's unexpected out-of-court settlement in 2016, Canada was expected to be the next battleground concerning isolated gene patents. In a surprising turn of events, Great Britain's impending exist from the European Union suggests that it will provide the stage for the next legal battle over the patent eligibility of human genes.

[84] In fiscal year 2013, the most recent year for which data is available, there were 139 government "secrecy orders" in effect in Canada, twenty-one of which were these so-called "John Doe" orders imposed on private inventors whose inventions and patent applications were generated without any government or military support (*Ottawa Citizen*).

In handing the patents over to Laura, David has effectively made decision and *not* made a decision. Following his philosophy that "corporations aren't ethical, but people can be," David chooses to leave the decision to Laura rather than to a company like Lowie or an advisory board like the NSABB. While Laura fits David's vision of an ethical person, she is the antithesis of what both Selgelid and Dulken envision. Contrary to Selgelid's description of a "dual-use censorship tsar" who has both scientific and governmental training or Dulken's prescription of a multi-disciplinary board of experts qualified to make bioethical and national security decisions, Laura is, as far as we can tell, a housewife who has devoted her life to caring for her family. She is the quintessential viewer, or vehicle for "us" the audience. In (presumably) choosing to bury Harlan's research, Laura vindicates David's philosophy by demonstrating her ethical commitment to human diversity over her desire to make a profit. The problem with David's logic, however, is that the market for a drug like Gay-Away is driven as much by consumer demand as it is by corporate greed. Lowie does not have to create a market for Gay-Away; a market already exists. It has been shaped by more than a century of cultural homophobia in conjunction with the newer neoliberal ideologies of consumer and parental free choice, the nuclear family, and genetic determinism. Now that genetic screening, medical intervention, and gene therapy have become "just another business component of the economy," eugenic practices can be offered alongside any other "commodity under the legitimized authority of medical institutions" (Critical Art Ensemble 122). Eugenic consciousness has developed in the population, and it is now the public who is courting eugenics rather than the other way around (121). In other words, it is the collection of individuals who would purchase the drug, either for themselves or for

their children, who make manufacturing Gay-Away a profitable business. Corporations like Lowie certainly seek to capitalize on the market (and, in so doing, perpetuate it), but they did not create the market. The eugenic market has been in development for decades and has materialized precisely as Frederick Osborne predicted it would back in the 1930s.

David's decision to turn to Laura aligns with his philosophy that individuals make ethical choices, but the decision Laura makes contradicts David's other position, outlined in the very same conversation: that "scientists need a free flow of information. Censorship isn't the answer." As we see in the next section when David and Jill withhold their research on the Spanish flu, it results in an epidemic that can only be stopped by making their research public and allowing cooperation among the international scientific community. Over the course of its four seasons, *ReGenesis* demonstrates time and again—with genetically-engineered strains of small pox, mad cow disease, cyanobacteria, and others—that it is only through sharing their research and cooperating with colleagues across the globe that scientific progress can be made. So why then does *ReGenesis* appear to celebrate Laura's decision to censor her husband's research on X313? Is censoring the "gay gene" really a bioethical victory, or is it an unfortunate yielding to the persistence of cultural homophobia in the twenty-first century?

The fact that homosexuality no longer needs to be justified through an association with high intelligence, creativity, or social utility indicates a degree of social progress since the early twentieth century. Yet it is the very ideological separation of homosexuality from these other traits which makes it vulnerable to eradication a century later. If one can have all of the socially desirable characteristics in this cluster without homosexuality—and homosexuality can be tied to a single gene—then, as Bob suggests,

"Well, wouldn't you want to see if you can turn that behavior off?" Laura's decision to bury Harlan's research seems to be less of an ethical victory than a testament to the persistence of anti-gay prejudice and the fear that, if the gay gene can be "turned off" by a chemical compound, *it will be*. This line of thinking is not unique to *ReGenesis*; the storylines in *The Twilight of the Golds, Law and Order*, and *Century City* all revolve around the same assumption. The only reason Harlan's discovery of the mythical X313 may be "worth millions" and *Century City*'s Dr. Brezak does not inform his clients that their children carry the gay gene is because the cultural desire to eradicate homosexuality not only exists in "other countries" but here, too. If there were no market for a pill like Gay-Away, then as David first hypothesized, Harlan's discovery would bring him "a lot of fame, but not necessarily fortune."

On the surface, by not manufacturing a cure for the "gay gene," *ReGenesis* appears to treat homosexuality differently from the other characteristics that have been separated out from sexual inversion—anxiety, addiction, and Asperger's Syndrome. Just as the DSMV no longer treats homosexuality as a mental health disorder, so *ReGenesis* attempts to differentiate gay identity from these other "pathological" conditions through their divergent side effects. As we see throughout the series, the disastrous failures of NorBAC's proposed cures for these other "disorders" reveal the complex nature of biosocial traits, their interconnectedness to other genes and biological structures, and the inability to cure them without irrevocably damaging other aspects of human functioning. In other words, since it is still "politically correct" to express the desire to cure anxiety,

addiction, and Asperger's Syndrome,[85] it is only by discovering the biological problems associated with their cures that NorBAC's team resolves not to continue with its trials. Arguably, NorBAC did not need to follow this course with Gay-Away since its side effects could be understood by the audience *without* actually manufacturing the cure. In this case, however, the side effects of the drug are understood to be socio-political rather than biological. If NorBAC had produced and tested Gay-Away on actual men and found that it negatively compromised their health, then the problem with Gay-Away would be understood as its ineffectiveness rather than its undesirability or the inherent problems in tinkering with complex human biosocial characteristics.

Despite these minor narrative alterations, I argue that *ReGenesis*'s treatment of homosexuality is not substantively different from the others. If anything, it is the series' artificial efforts to differentiate them (which fall rather flat) that demonstrate the degree to which they are still connected. For instance, the distinction between biological, social, and ethical side effects is just as contrived as NorBAC's attempt to attribute the proposed cures to different research scientists or corporate entities (Harlan Sendak of Lowie Pharmaceuticals, private researcher Angelica Starov, and Ann Turnbull of Vision Sight) until, in the end, we realize they are all funded by ADI. Through this single corporate interest, *ReGenesis* lumps them all together as human conditions which it would be culturally desirable to erase—so much so that the development of a genetic cure would "bring them millions." Moreover, each story's narrative arc unfolds according to the same formula: the potential cure is discovered, NorBAC's team members hotly debate its

[85] In the years since *ReGenesis* aried in 2008, the disability rights' movement has continued to gain ground in advocating for its position that Asperger's Syndrome, along with other neuro-atypical conditions, is not a "disease" and does not need to be "cured."

use, and then it is shown to carry devastating side effects that bring the question of scientific censorship front and center. The effort to treat each condition separately—by using different characters and dramatizing their personal struggles—works to parcel out a cluster of characteristics which were once understood, collectively, as forms of cultural transgression. Through this de-politicizing strategy, social rebellion becomes personal affect and attempts at collective organizing are obfuscated. Now we have only individual problems that require individual solutions. It is only by refusing this alienated reading and insisting on treating NorBAC's team as whole, as four faces of a single cube, that we can *re*-politicize them, thereby exposing the structuring logics that have generated the cultural desire for their collective erasure.

Asperger's Syndrome

Like many real world scientific discoveries, *ReGenesis*'s genetic treatment for Asperger's Syndrome is discovered by happenstance while testing a new gene therapy designed to regrow the optic nerve. Bob, who is left visually impaired after an accident in the lab, volunteers for the experimental procedure. The procedure succeeds in restoring his sight, but his colleagues begin to notice changes in his personality. Bob, whose social faux pas and literal interpretation of metaphors have provided much of the series' humor, suddenly becomes empathic. For the first time, his repetitive movements cease and his incessant rambling about biochemistry and dogs is replaced by pointed questions about his friends' personal lives. To investigate these changes, Bob's surgeon, Dr. Turnbull, performs a brain scan and discovers that his nearby Jacobson's Organ has been activated

and his genes have been fundamentally altered. The Jacobson's organ[86] is an auxiliary olfactory sense organ primarily used to detect pheromones, which play a role in social behavior and reproduction. While it is still active in many animals, it has become vestigial in humans (Liman 125). Dr. Turnbull reports her findings to Olivier Roth, the CEO of ADI, the company that funds her research. As she explains, activating a human's Jacobson's organ allows him to detect pheromones that foster social bonding and promote empathy. It is not a direct cure for Asperger's Syndrome, but it gives those with the condition an alternative means of developing empathy and sociality, two of the primary traits affected. For Bob, since the procedure's effect on his Asperger's is accidental, he does not have the same opportunity that was presented to Jill, David, Owen, and Carlos; he is not asked whether he *wants* a genetic treatment. It simply happens.

As NorBAC's clinical focus comes to center on Asperger's Syndrome, the astute *ReGenesis* viewer anticipates that the series will now delve into the biological and ethical ramifications of manufacturing a panacea for the condition, much like it did with addiction and homosexuality. Once Roth gets hold of Dr. Turnbull's research, however, *ReGenesis* flouts these expectations. Roth is not interested in developing treatments for conditions that will return individuals to the human status quo. Instead, he sees in the Jacobson's organ an opportunity to increase the level of empathy in the human population by performing the procedure on unaffected individuals. It is in this way that *ReGenesis* turns to our evolutionary past in order to imagine a new way forward. This

[86] The Jacobson's organ is the colloquial name for the vomernasal organ, named because of its placement near the vomer and nasal bones.

vision of human *re*-genesis unfolds onscreen through the interweaving of two fundamentally contrary ideologies: Christian theology and Nietzschean philosophy. In *ReGenesis*'s fabricated "idea environment,"[87] a popularized treatment of Nietzsche's recuperation of the human being's animality is achieved *biologically* through the reactivation of the vestigial Jacobson's organ. This reactivation engenders a series of events which conclude with David's dream in the defiantly titled episode "The Truth": a dream that carries allusions to both that of Zarathustra and that of Jacob in the book of Genesis. This ideological incongruity is yet another one of the series' many debts to early eugenics: a debt it acknowledges through the revelation that it is the Jacobson's organ's exposure to the genome of the 1918 Spanish Flu that changes the direction of human evolution.

A. Jacobson's Organ as a Biological Return to the Human Being's Animality

In *ReGenesis*, reactivating the vestigial Jacobson's organ functions as a biological return that brings with it the human being's forgotten animality. While Nietzsche theorizes animality in purely philosophical terms, his unmistakable allusions to Darwinism have caused his work to be taken up—sometimes, much to his dismay[88]—by

[87] For how Michael Freeden's concept of the "idea environment" applies to early eugenic ideology, please see my discussion in Chapter One.

[88] Rudiger Safranski writes in *Nietzsche: A Philosophical Biography* that the idea of the Übermensch (overman) as biological type or as half-saint/half-genius "came across as a voguish figure . . . which was quite discomfiting for Nietzsche" who wanted to "ensure that his Übermensch was something original and unique" (263). In *Ecce Homo*, Nietzsche writes that the "word Übermensch to designate a type of supreme achievement, as opposed to 'modern men . . . has almost universally, in complete innocence, been taken to mean the very values that are the exact opposite of what Zarathustra was intended to represent, namely the 'idealistic' type of a higher kind of man, half 'saint,' half 'genius' . . . other academic blockheads have suspected me of Darwinism on that account . . . When I whispered into the ears of some people that they were better off looking for a Cesare Borgia than a Parsifal, they did not believe their ears" (6; 300). Safranski is, however, quite quick to point out in his biography of Nietzsche that "Nietzsche found fault not

eugenicists who have seen in his writings a call for a human of a higher biological type. His reduction of psychology to physiology, seen in his frequent references to the mind as a product of the brain, spinal cord, and nerves, [89] provides the impetus for *ReGenesis* to use a popularized, geneticized version of Nietzscheism for its own purposes. It takes Nietzsche's assertion that "the creative body created the mind for itself as a hand of its will" (*Zarathustra* 19) and reinterprets it through the lens of twenty-first century genetics. The "created" mind takes the form of Bob's re-engineered brain which, by virtue of its functional Jacobson's organ, recuperates the qualities Nietzsche identified with animality: creativity, instinctiveness, and forgetfulness. It is these animal instincts, often referred to as the "subconscious self," which human beings possess but have lost due to acculturation. Suddenly able to *smell* emotions and *see* his colleagues with his eyes closed, Bob taps into this "subconscious self." Of these instincts, Nietzsche prizes the animal's forgetfulness above all. It is the ability to forget that allows us to take risks, to exercise the full scope of our creativity, and to throw ourselves headfirst into our passions. It is thus through the re-awakening of their Jacobson's organs that *ReGenesis* presents the Melnikov line as Nietzschean overmen: future humans who have fully overcome themselves by rising above culture and using their creative will to live according to their own principles. Much like the gradual development of the overman in Nietzsche's thought,[90] *ReGenesis*'s vision of the human with a functional Jacobson's

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with this Darwinist idea of development" but with "prosaic notions of a higher type of man who was still domesticated" like those of David Freidrich Strauss (263).

[89] For instance, in *Thus Spake Zarathustra*, Nietzsche imbues his titular character with the message that "Body am I entirely, and nothing more . . . The body is a great intelligence" (19).

[90] Safranski charges Nietzsche with forgetting that in his earlier works, such as "Schopenhauer as Educator," he "developed a concept of genius that strongly resembled the type of 'half saint, half genius' he

organ begins as an idealistic and quasi-religious figure and becomes increasingly more sinister until he is an ignoble grand-player motivated by a will to power. While the plan for human evolution begins with a single act of conscious wisdom, it is realized by the subconscious work of the "great intelligence" that is Robert Melnikov Jr.'s body.

The Melnikov's *re*-turn or *re*-genesis is reinforced by the series' use of parallel editing, which allows two stories to unfold simultaneously. While Bob adapts to sensing human pheromones, NorBAC's other team members track down the magnetobacteria that is destroying mainframe computers and threatening to return humanity to the pre-digital era. Both are responses to the way in which man has used culture to distance himself from his animality. And, as we soon learn, it is Roth's company ADI that is behind both endeavors. His two-pronged approach involves *re*-awakening our forgotten animality by "short-circuiting" both our biology and our culture. Determined to put his plan into action, Roth approaches Bob with the proposal to spread human empathy by using his stem cells to activate the Jacobson's organ in the general population.

Standing across from Bob in his private office, Roth launches into a turgid monologue against human greed in the form of intellectual property patents, war profiteering, and other manifestations of neoliberal capitalism. As he paces back and forth, the light from the wall sconce casts his face in and out of shadow. It is as if his visage is a hologram: a spectral image recalling Big Brother from the filmic adaptation of *1984*. The cinematography further distances Roth from the viewer by shooting him off-

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was now criticizing" (263). Beginning in the period of *Zarathustra*, Nietzsche "deleted several idealistic and quasi-religious traits from the image of the Übermensch. It was not until the fifth book of *The Gay Science* that the Übermensch appeared as a dastardly grand player, a bogeyman of the middle class and amoral bastion of strength" (264).

center but presenting Bob straight-on, using three-point lighting. The full bookcase behind Bob houses not only scientific texts but also works of philosophy, literature, and history that span the range of human learning. The positioning imbues Bob, rather than Roth, with this knowledge and responsibility, reinforcing his status as a genius. Even among NorBAC's team of genius scientists, it is Bob who has the highest IQ: 162, the maximum score possible on Lewis Terman's Stanford-Binet Intelligence Scale. Roth, on the other hand, is not a scientist but a businessman. As CEO of ADI, he is *ReGenesis*'s strawman for the very capitalist system he now critiques:

> I thought all my money, all the scientists involved, could make humanity better off. There were 3 million AIDS deaths this year. Not enough drugs to go around because patents prevented countries in Asia and Africa from providing people with cheaper, generic AIDS drugs. "Change the channel." That was General Mark Kimmitt's advice to Iraqis who see TV images of innocent people killed by coalition troops. Exxon has the hubris to report the highest profit in the history of corporate America! I did not recognize that the fundamental problem is humanity itself. We are controlled by the greed of others. We no longer understand who that person is in the mirror, let alone that child starving to death in his mother's arms on the other side of the world. You are everything Dr. Turnbull has said you are. . . . We have a chance to start over. Stop the race for higher profits. Stop the technology that's taking this planet apart! Stop it now in one screaming short-circuit of rebirth! . . . We will change humanity, evolve the species. . . . You, Dr. Melnikov, encompass the only hope we

> have left. A man who truly understands the compassion, the hopes, the fears of his fellow man. Within you, in a stem cell in your brain, lies the future of mankind.

The roving circuitous movements in Roth's speech reflect *ReGenesis*'s model of evolution, concretized in the episode's title: "Back to the Future." For Roth, "humanity itself" is at once the "fundamental problem" and the final solution; the "only hope we have left." He intends to "evolve the species" by going backwards, by overnight reviving the vestigial Jacobson's organ that natural evolution phased out over millennia. This mode of artificial evolution relies on precisely the kind of advanced technology he charges with "taking this planet apart." Except, in this case, it is not the planet—but the human being—that will be taken apart and reconstituted. Through genetic technology, he wants to "short-circuit" society and start over, beginning with the "rebirth" of mankind. On the one hand, Roth demonstrates a powerful recognition of the fact that we no longer have a society; under neoliberal capitalism the social collective has been replaced with individual consumers. Yet Roth himself perpetuates the very system he is critiquing through his proposed solution: a de-politicized "empathy gene" that can be awakened in individuals. So rather than intervening at the level of economic infrastructure, he wants to intervene at the level of individual biology. What is more, Roth's plan depends upon the resources provided by ADI—his private, for-profit, pharmaceutical company whose numerous patents will fund the project. His ability to even contemplate this project is the result of the wealth and status he has gained through ADI, built on the backs of everyday citizens who purchase its medical products. Using this revenue to develop a wide-scale stem-cell transplantation operation will not "short-circuit" but, rather, reinforce the

neoliberal infrastructure that has been built out of "human greed." Finally, his assessment that humanity is too far gone and can only be redeemed by going back to our evolutionary past, forecloses the possibility of going forwards *differently*. It forecloses the possibility of improving our present by addressing systemic inequalities by de-privatizing the medical and pharmaceutical industries, redistributing global wealth, or instituting economic socialism.

Roth's plan begins with the genetic *re*-genesis of humanity by using twenty-first century genetic technology to reimagine the Bible's creation myth. Contrary to all scientific protocols, Roth tests this procedure on a single subject (his assistant Nina) instead of creating an IRB-approved study with controls and a representative sampling of participants. The work that this scientific inaccuracy does, however, is establish Bob and Nina as Adam and Eve figures, falling in love as they live together in a trailer parked in a large garden behind Roth's lab. Implanted with Bob's stem cells rather than his rib, Nina recounts her awakening as she holds Bob's hands in the garden: "I'm the first one to have a part of you inside me." Beginning with this one man and one woman, Roth intends to use a combination of stem cell transplantation and sexual reproduction to populate the Earth with successive generations of evolved human beings, all with functioning Jacobson's organs. Unfortunately, Bob and Nina's garden sanctuary quickly sours when she experiences unexpected side effects. Much like Angelica's addiction trial in "The God of Commerce," ADI's investigational procedure nearly kills its first human volunteer. Nina becomes aggressive and violent, banging her head on the furniture and trashing their living room. It turns out that in people without Asperger's, a functional Jacobson's organ makes them feel so much that they cannot handle the stimulation. Their

brains experience a sensory overload and they fall into psychosis. It is a nihilistic outcome for what began as Roth's idealistic attempt at human regeneration in an artificially-engineered Garden of Eden. But rather than stop his experiment, Roth *re*-formulates his strategy and, to prevent any interference, returns Bob to NorBAC with virtually no memory of the experience—an effect of post-operative cerebral swelling.

Bob's forgetfulness becomes the enabling condition for *ReGenesis*'s evolution of the human species through the reactivation of the Jacobson's organ. He remembers his love for Nina and his desire to be a father, but not the bloody, failed experiments in Roth's lab or the fact that their unborn child is actually his clone. Since the Jacobson's organ cannot be safely activated in neurotypical individuals, Roth's plan shifts from a model of human rebirth fashioned after Genesis to one centered on Jesus as the Redeemer of humankind. Nina's immaculate conception of Robert Melnikov Jr.—made possible not by divine intervention but by germ-line editing and IVF—positions her as a twenty-first century Mary and Robert, the first human clone, as a Christ figure. This Biblical allusion closely recalls Edith Ellis's thesis in "Eugenics and Spiritual Parenthood" that we should not look to the "normal person" to advance society but, rather, to the "discordant note" who "rightly approached and understood" can be made into a "veritable Knight of the Grail" (63-4). In Robert's case, it is his Asperger's Syndrome, the very condition that renders him "abnormal," which allows him to tolerate an awakened Jacobson's organ. By the time Bob *re*-discovers Roth's plan and his unborn son's genetic status, he has already grown to love him and accepts him as the future of mankind. It is this merger of human memory with animal forgetfulness, biologized in *ReGenesis* as an effect of the Jacobson's organ, that Nietzsche prophesized would lead to human overcoming. As he

argues, "confidence in the future" depends "on one's being just as able to forget at the right time as to remember at the right time; on the possession of a powerful instinct for sensing when it is necessary to feel historically and when unhistorically. . . . [T]he unhistorical and the historical are in equal measure for the health of an individual, of a people" (Nietzsche, "On the Uses and Disadvantages of History for Life" 1). This merger of memory and forgetting becomes even more vital to the evolution of mankind as the series continues.

B. David's Dream

ReGenesis's series finale, "The Truth," takes place in David's mind. After being knocked unconscious (Nina hits him with a shovel), David dreams that is the year 2043,[91] he is in an international courtroom, and he is testifying about the fate of the Melnikov descendants after Robert is determined to be patient zero in a series of global pandemics. This association between the notion of truth and the state of dreaming provides one last mode of narrative and temporal disruption, intimating to the viewer that the penultimate episode will offer no resolution to the series-long agonistic struggle over gene editing and scientific censorship. Placing this dream in David's unaltered mind (rather than in that of Bob or Robert) further dramatizes the human quest for answers and the nonexistence of a grand truth narrative. In a final nod to Nietzsche, who once said that it is through dreaming that human beings come closest to accessing their former animality, David's dream begins as a pontification on the value of animal forgetfulness. Over a montage of

[91] The year 2043 recurs in dystopian science fiction series as the year of the great plague. In the *Twilight Zone* episode "Quarantine," Matthew Forman learns that his civilization was destroyed by a third and final World War in 2043. The "present time" in the time-travelling series *12 Monkeys* is 2043, when the human population has been almost entirely decimated by a great plague.

still frames of apes, gorillas, and early hominids, David's disembodied voice asks: "Were we better off then, or was it just that we didn't know as much as we do now? So what was it like when we knew nothing?" As soon as David formulates these questions, he is transported not into the past but into the future. As his dream continues, it creates a counterhistory, an alternative record of *ReGenesis*. Counterhistory, in Nietzsche,

> liberates the human animal's creativity from the ties of an all-too-historical perspective on the past. It allows the human animal to experience its life force as creative and artistic, rather than as moral and rational. In counterhistory memory and forgetfulness become forces of overcoming invested in future life rather than in the preservation of past life. . . . It reverses the flow of time and turns what is dead (the past) into something that is alive (the future). (Lemm 95)

In the case of *ReGenesis*, this metaphorical death of the past is reworked to include the literal death of those who died in the global pandemics so that the species could evolve, resulting in 3.2 billion Melnikov descendants with functional Jacobson's organs. It asks us to forget parts of the past because the future need us to. Forgetfulness thus disrupts the continuity of time in order to engender a new beginning, symbolized in the personage of Robert Melnikov Jr.

Cutting from the images of apes to David sitting on the witness stand, his dream unfolds as a courtroom trial, set in Broadcast Studio One at the mythical World Science Headquarters in Geneva, Switzerland. Owen and Robbie's suspended trials have made way for this trial, one set in the chambers of David's unconscious mind. Together, the lingering monkey imagery and the self-reflexive references to the trial's publicity recall

the infamous Scopes Monkey Trial (*The State of Tennessee v. John Thomas Scopes*), signaling to the viewer that human evolution will be on trial. While in 1925 the court addressed scientific censorship by ruling on the legality of teaching schoolchildren "the truth" of natural evolution, in *ReGenesis*'s 2043, the form of scientific censorship under review involves the technological knowledge necessary to artificially engineer human evolution. This question of the "genetic bomb" is further invoked by the trial's date, typed across the screen: December 2, 2043. It is exactly 101 years to the day after the Manhattan Project scientists successfully demonstrated the first nuclear chain reaction. The WWII comparisons continue as the prosecutor questioning David explains the reason they are in court today: 1 billion people have died in a series of global pandemics, which began with Robert's exposure to the genome of the 1918 Spanish flu (dug up by David). It created a chain reaction and, one by the one, a host of other dormant viruses are being reactivated in the DNA of the Melnikov descendants. *So should the Melnikov line be exterminated?* Should the World Science Board enact the first truly genealogical genocide? While this is the explicit question put forth by the prosecutor, placing this trial in David's dream suggests it is not really a question of eugenic euthanasia but, rather, a question of scientific censorship. When David wakes up, back in 2008, he—along with the audience—must decide what to do with this *information*.

Despite Roth's professed desire to "short-circuit" the neoliberal infrastructure that sustains the "race for higher profits" like drug patents and human tissue banks, it is precisely by continuing to use these practices that Robert engenders the global pandemics. At 18, Robert uses his trust fund (set up by Roth) to establish the Robert Melnikov Jr. Fertility Center, a sperm bank advertised by infomercial in 178 countries. It

markets his sperm as an "evolutionary breakthrough" that will give mankind the "gift" of empathy by allowing them to have children with an awakened Jacobson's organ.[92] Of course, this "gift" is not free; it is sold by Robert for a hefty price. Referring to himself as an entrepreneur on the witness stand, Robert explains to the prosecutor: "It's well known that my DNA was the most desirable. I believed I had a product that people wanted." Unlike David whose face and posture bear the burden of the deaths of 1 billion people, Robert sits upright and looks the prosecutor in the eye, joking about his "high count" with the same hubris that prompted him to open a sperm bank that only sells his sperm. It is this uncompromising "will to power" that differentiates Robert from both Roth and David and characterizes him as a biologized version of Nietzsche's overman. In *The Gay Science*, Nietzsche defines the overman as the "ideal of a spirit who plays naively—that is, unintentionally and from a position of overabundance and power—with everything that has always been called holy, good, untouchable, divine" (382). By spreading his own sperm in "overabundance" without regard for what others might view as the "holy, good, untouchable, divine" human genome, Robert overcomes himself and pursues his will to power at all costs. When the prosecutor charges him with failing to test for any retrovirus activation in his DNA, he simply says: "I did not know." Unlike David who regrets privatizing his research on the 1918 Spanish flu and delaying the development of a cure, Robert offers no apology and there is no indication that he would have done anything differently if he *had* known. Robert ascribes to an individual law beyond traditional morality because, while traditional morality keeps the ordinary person in check, it can

[92] These children do not have the side effects experienced by Nina and others because each of them inherits Bob's/Robert's Aspergers gene which, presumably, safeguards them from the dangers of an active Jacobson's organ.

only stand in the way of an overman. The overman follows only those rules he sets for himself.[93] For Robert, the loss of life is a necessary condition of his own forward progress. His self-overcoming is even more of an accomplishment (when viewed in this way) since his awakened Jacobson's organ should, presumably, highten his empathy.

As the trial continues, *ReGenesis*'s history unfolds piecemeal through a combination of testimony from NorBAC's surviving members, surveillance footage, and television news clips. The successive array of competing screens work like holograms, appearing and disappearing as the prosecutor summons them with her finger. As she explains, even though NorBAC eventually stops the resurgence of the 1918 Spanish flu, a series of other extinct viruses begin to surface in the human population: the Cambrian cell epidemic, the CTLV virus, and super-smallpox. The Melinkovs themselves are immune to the viruses, but they act as carriers. Like the Castor clones in *Orphan Black*, they are fully organic "body-weapons" who have been silently spreading their viruses for the last seventeen years. Unlike the Castor clones, however, their body-weapons exist in the corporeal form of the child. It is in this way that *ReGenesis* partially disrupts the Cult of the Child which undergirds reproductive futurism. As Edelman argues in *No Future*, the "Child has come to embody for us the telos of the social order and come to be seen as the one for whom that order is held in perpetual trust" (10). To penetrate the fantasy of the social, Edelman asserts, we must dismantle the image of the mythical Child. The Melnikov children begin to do this work as their body-weapons become a metaphor for the mythical "child in whose name we're collectively terrorized" (6). This metaphor is

[93] For a discussion of the overman in Nietzsche, see: Rudiger Safranski's *Nietzsche: A Philosophical Biography*, p. 265.

literalized onscreen as the prosecutor reads off the statistics of everyone who has died in each pandemic. As she speaks, the screen behind her plays a montage of photographs: faces, buttocks, torsos, and limbs infected with red pustules and sores. They are high-definition, color recreations of the Progressive Era's venereal disease photographs. At first, the screen displays one photograph at a time. Then it starts to divide, much like a cell into two, then four, then sixteen, demonstrating simultaneously the spread of the pandemic and the spread of the Melnikov lineage. Unlike in the Progressive Era, however, these photographs are the result of *using* eugenic practices. By creating these designer babies not as a symbol of life but as a symbol of death, *ReGenesis* pits the figure of the Child against reproductive futurism. The members of the World Science Board must make a choice: either save the 3.2 million Melnikov children or risk the lives of all the naturally conceived people on the planet. Notably, the naturally conceived people she invokes are not the "innocent children" who the Melinkov descendants might infect but, rather, "us:" us the World Science Board Members and us the adult viewers. This notion of exterminating the children for the sake of "us" is reflected in the examples and photographs she presents. They are all adults—adults with whom the viewer has developed a connection, like Nina. At only two years old, Robert unwittingly killed his own (gestational) mother by infecting her with the Spanish flu. She is but one of the many mothers who, the prosecutor argues, should not have had to die for the sake of their children. Their future, and the future of human evolution, now depends on the decision of the World Science Board, which is preparing to hear David's testimony.

Through its final exchange between David and the prosecutor, *ReGenesis* approaches the question of censorship as a juxtaposition between knowledge and

imagination. Dressed in all black, the now 70-something David sits on the witness stand. His typically clean shaven face has sprouted a thick out-turned mustache and beard, causing him to resemble the older Nietzsche. The unnamed prosecutor stands a few feet away, wearing a cream-colored dress. In the crook of her neck hangs a gold cross, framed on either side by waves of her golden-blonde hair. The color symbolism, reminiscent of early melodramas like *The End of the Road*, here works against conventional expectations. Using camerawork to align our point of view with David, we identify with him, against the antagonistic, nameless prosecutor whose background we never learn. By dressing its tragic hero in all black while bathing the sardonic prosecutor in light hues and religious imagery, *ReGenesis* brings Nietzschean philosophy and Christian theology together one last time in order to flout a dichotomous reading of good and evil and, instead, bear out the true complexity of human evolution and scientific censorship as well as the structuring logics of capitalism at work beneath the surface. Responding to the prosecutor's question about the legality of the chip he developed to sequence the Spanish flu's genome, David explains: "At the time we didn't have Big Brother telling us what we could or could not do. We could research, we could experiment, without the permission of some arbitrary board of overseers." As we learn, in 2032, The Singapore Accord established a Scientific Censorship Board, precisely like the one Selgelid and Dulken called for to assess the risks of publishing scientific research. In practice, however, the board goes beyond censoring the publication of research, and begins to regulate the kind of research that can be undertaken. Challenging David's declaration that he does not want anyone telling him what he can research, the prosecutor asks: "Do you think if that accord were in place when you were researching a way to help Bob Melnikov Sr. repair

his eyesight, that we would be in the same situation we're in today?" As the prosecutor astutely points out, the issue is vexed and the Melnikov pandemics likely could have been prevented by stricter censorship laws. Upsetting traditional judicial procedure, David interrupts the prosecutor and asks *her* a question: "What do you think is more important: knowledge or imagination?" When she answers "knowledge," David chuckles and tells her: "That's why you're a lawyer, no offense. Scientists use knowledge but when you have to break new ground, you have to use your imagination, you have to speculate, theorize, hypothesize, sometimes even fantasize for inspiration." This final invocation of imagination re-connects the characteristics that once defined the Progressive Era's "neurotic cluster:" intelligence, creativity, abnormality, and innovation. Just as Nietzsche believed our most creative impulses lay in our dreams, in our forgotten animality, so the early eugenicists lauded imagination and reverie. They simply understood them and their purpose differently than Nietzsche. For the eugenicists, it was the inverted sexual impulse that sourced imagination and, far from a natural expression of or return to our former animality, they understood it as "abnormal" even as they touted its value for cultural progress. Promoting imagination as a world-building tool in *Eugenics: A Journal of Race Betterment*, psychologist Florence Sherbon writes that "[u]pon such thin and tenuous stuff as the daydreams of adolescence may rest eugenic destiny" because "[n]othing can furnish a better guide to educational and social effort than an intimate acquaintance with the spontaneous, undirected interests of the youth as expressed in purest form in reverie or phantasy. . . . Dreams of the future are oftenest of the vague future with boundless possibilities" (8). The early eugenicists thus viewed dreaming as a way of augmenting

human civilization, whereas Nietzsche saw it as a disruptive force with the power to overcome domestication.

ReGenesis, as a representative example of early twenty-first century sci-fi television and film, draws on both legacies. It begins with Roth's humanitarian aim to spread human empathy and social collectivity (something we might expect to see from ASHA), but then systematically re-defines the human by *going backwards in order to go forwards*. *ReGenesis*'s ideal human is a technologically re-designed one that has doffed social graces for the sake of self-overcoming. Nonetheless, it is the cluster of characteristics that the early eugenicists associated with imagination that makes NorBAC's team members the ideal candidates for bringing about *ReGenesis*'s eugenic vision. In his last words to the prosecutor, David uses this argument in favor of imagination to speak against scientific censorship. He asserts that it is through

> experiments; that's how we learn, that's how we get it right. . . . That's how we'll endure. By solving our problems, not running away from them. If we learn how to stop the Melnikov viruses, we just may learn how to stop the last virus. Someday a virus could evolve to be so perfectly efficient it would destroy every living thing on our planet. The end. The end of our species. The end of everything. And it's going to happen . . . whether you're prepared or not. Science makes mistakes, but science is a journey. The road is long and with every step we learn a little bit more. . . . I can't see *the end of the road*, and if you just let me keep going, as far as I can, I promise I will prove to you there is nothing to be afraid of, that it's

> just shadows, and 3.2 million people don't have to die just because of fear and ignorance. (emphasis mine)

Returning to *ReGenesis*'s final scene, we see David's eyes close, presumably weighted down by the heaviness of his argument. And, with the next cut, we are transported to a long shot of a snow-covered road where two children are walking and talking together. As they walk, they get closer and closer to the unconscious David, lying in the snow. In the background, the road extends past the frame on both sides. Like David, we cannot see "the end of the road."

On the surface, it appears that David's invocation of *The End of the Road*'s eugenic metaphor runs counter to that of the Progressive Era eugenicists. He echoes Edith Ellis's charge that his foes in the scientific community are acting out of "fear" and "ignorance," but his plea is for more eugenic intervention, not less. Against Elllis's warning that the adoption of eugenic principles and technologies "until our human and scientific knowledge is more profound, may possibly hinder what we want to bring about" (49), David calls for the ability to make mistakes and to act naively, even at the cost of human life, for the sake of innovation and so that he can remain at the helm of the ship. He believes his scientific abilities will allow him to develop the cure to the "last virus." Yet, it is through this ambition to "stop the last virus" that David, like Roth, undoes the very critique he levels against the scientific industry. While David rightly scorns the kind of applied research that disavows "mistakes" and doesn't allow room for open-ended investigation, he undermines his argument by using this final humanitarian purpose and monetary utility to justify his research. His case for sparing the lives of the Melnikov children is thus negated and replaced by the logic of the profit-motive. The

Melnikovs' bodies cease to be "genetic bombs" and are re-written as the raw substance David can use to develop a super-antibiotic to save "us." And, in a partial reversal of Edelman, the children's bodies become a vehicle for ensuring *our* futurity. The result is that while David dissociates the child from the logic of reproductive futurism, he does not dismantle reproductive futurism itself. Assigning us the task of stopping the last virus takes us away from the political present and necessitates that we make sacrifices in the here and now for the then and there. David, like the early eugenicists' Mary Lee, wants to help us get to "the end of the road."

Against David and Mary, I argue that it is precisely this desire to get to the end of the road that is holding us hostage. As I have demonstrated in this chapter, each of the four proposed cures represents an attempt to reach "the end of the road" by taking control of human substance and permanently suppressing those characteristics believed to be associated with social deviance. This dissolution of the "neurotic cluster" into four individualized (and treatable) affects is a bid to preempt the very social critique and mode of collective bargaining that could disrupt the infrastructure of neoliberal capitalism on which "the end of the road" relies. Yet, each of these efforts to reach "the end of the road" results in a complex nexus of biological, social, and ethical side effects. I thus urge us to look past David's clichéd monologue and, instead, to read *ReGenesis* as a fifty-two episode, audiovisual treatise in the inherent problems of trying to steer humanity towards the "gates of heaven." In my view, it is only by renouncing the gates of heaven and the necessity that we reach the end of the road—that every action we take must be directed towards some future purpose—that we can begin to live for the here and now. This does not, however, mean giving up on all cures for disease or on all future-looking efforts,

particularly those which thwart the capitalist imperative such as preventative medicine or sustainabile energy, water, and agriculture. My objective is instead to liberate scientific research from the imperative that it *has to* have a purpose, particularly one that can be commodified in order to turn a profit. It is my view that we should work to counter the cultural devaluation of basic research and correct the current imbalance wand prestige associated with the two models. After all, David's argument about "the last virus" in not simply a humanitarian one. He is directing his monologue directly to the World Science Board whose members would have deep, financial interests in the production of a vaccine that could be given to each living human, at X dollars a pop. By doing away with the capitalist imerpative that lurks behind applied research, the possibilities foreclosed by "the end of the road" once again become thinkable.

CONCLUSION:

THE .1%: GENOMIC RESEARCH, NEOLIBERAL CAPITALISM, AND THE FUTURE OF QUEER KINSHIP

> Increasing knowledge of the human genome must never change the basic belief on which our ethics, our government, our society are founded. All of us are created equal, entitled to equal treatment under the law. After all, I believe one of the great truths to emerge from this triumphant expedition inside the human genome is that in genetic terms, all human beings, regardless of race, are more than 99.9 percent the same.
> — President Bill Clinton, press conference on the completion of the Human Genome Project, June 26, 2000

> The top 1/10th of 1% today in America owns almost as much wealth as the bottom 90%.
> — Bernie Sanders, Liberty University address, September 14, 2015

The completion of the mapping of the human genome on June 16, 2000, revealed that all living humans share 99.9% of their DNA. In his joint press conference with Francis Collins and Craig Venter, the two leading geneticists behind the Human Genome Project, President Clinton uses our shared genome as biological evidence that "all of us are created equal" and are therefore "entitled to equal treatment under the law," the principle on which, he asserts, "our ethics, our government, our society are founded." What President Clinton fails to acknowledge, of course, is that we do not actually receive equal treatment either under the law or in society more broadly. As Bernie Sanders's disquieting statistics attest, it is not the principle of equality but, rather, the logic of capitalism—and the desire to control the surplus value it generates—that drove the United States to secede from Great Britain and continues to shape our legal, social, and economic policies today. The Declaration of Independence's proclamation "that all men are created equal, that they are endowed by their Creator with certain unalienable Rights" applied exclusively to white, land-owning men. The practice of slavery, which was

responsible for the lion's share of the Southern economy in the eighteenth century, continued for another ninety years while women, on whose domestic labor the nation depended, spent more than a century fighting for the legal right to control their earnings and own property independent of their husbands. It is these blatant contradictions and the lingering, systemic inequalities they represent that underlie the dual, twenty-first century narratives invoked by Clinton and Sanders: that our genome only differs by .1% and that .1% of the population holds the majority of our nation's wealth.

It is not surprising that, with the realization that we are more like than we ever thought, there has been a dramatic rise in genomic research projects that seek to locate gender, racial, and sexual difference encoded somewhere in that .1% (Bliss 2). Since 2000, our academic journals, magazines, and cable news programs have proliferated headlines like "Male Genes Really Determine Baby Gender," "What Science Says about Race and Genetics," and "Scientists find DNA Differences between Gay Men and Their Straight Brothers."[94] This push by many scientific and governmental authorities to dispel notions of biologically-based difference has also enticed corporations into selling this perceived difference back to us in the form of consumable commodities. We can order custom DNA portraits from dna11.com, get a diet plan tailored to our unique biology from dnafit.com, or purchase a genealogy and genetic health report from 23andMe.com. The drive to codify difference in our DNA is largely a response to the fear of a different kind of "race suicide" than the eventual elimination of white bodies by the overbreeding

[94] See: David Chandler, "Heredity Study Eyes European Origins," *Boston Globe* (May 10, 2001); Sheryl Stolberg, "Shouldn't A Bill Be Colorblind," *New York Times* (May 13, 2001); "Chromosomes Are So 20th Century - Male Genes Really Determine Baby Gender, Says Study," *Science* 2.0 (December 14, 2008); "Scientists find DNA differences between gay men and their straight twin brothers," *Los Angeles Times* (October 8, 2015).

of black and brown bodies which prevailed during the early twentieth century. Rather than the fear that their "exceptional" genes will be eradicated from the human gene pool, it is a fear that their genes were never exceptional in the first place. This kind of elitist endeavor is not, however, the only reason behind the recent cultural desire to emphasize social difference or to push for researchers to account for social categories in genomic research. In fact, 23andMe and Ancestry.com make a concerted effort to target the African diaspora in order to capitalize on the yearning to uncover an ancestral legacy that was often ripped away through the practice of slavery. Within minority communities, there is also a real fear that the inscription of a standard genomic model will be anything but standard; it is simply another way of institutionalizing a white, male, cisgender, heterosexual, and able-bodied norm. So, while those of us who deviate from this hegemonic model are rightfully apprehensive about dubious research that seeks to essentialize social differences, many of us are also fearful of being eliminated from medical research under the guise that these differences are irrelevant in genomic terms. For instance, there may be demonstrable health consequences if clinical procedures and pharmaceuticals are tested primarily on hegemonic bodies. Our ancestral differences, environmental exposures, or cultural practices may impact how our bodies respond to medical interventions. There may also be bioinformatic value in directly investigating the ways in which environmental factors—including social practices, unequal access to health care, and the stress of discrimination—can become encoded biologically. In fact, conducting hard science research on the biological effects of systemic inequality may provide powerful evidence that can then be used in social advocacy.

In the preceding chapter, I offered a series of case studies in order to demonstrate both the scientific flaws and political risks inherent in genetic research projects (like the search for the gay gene) which attempt to biologize queer difference in order to justify queer existence and lobby for political rights. As I have argued, the desire to locate our same-sex desire in our DNA is inextricably bound with homophobic notions of queer inferiority and the "manipulative fantasy" that our deviation could be repaired through genetic engineering. I have also exposed the more practical ways in which current genetic technologies, like IVF, disproportionately target the queer community and work in conjunction with legal strategies, like gay marriage, to compel domestic normativity through the creation of homonormative families. Like the myth of the gay gene, these more mundane scientific, technological, and legal approaches are all modes of queer erasure. The question my project raises is how can we advocate for genetic research and queer kinship alliances that will combat systemic inequalities without lending themselves to neoliberal commodification or interpellating queer individuals into hegemonic kinship formations? Implied within this question are a series of smaller questions: Is there a place for the inclusion of sexual orientation in research studies, and should there be health campaigns targeted specifically at gender and sexual minorities? Can we conduct genetic or biological research on queer subjects without falling into the trap of genetic essentialism? Can we have modes of social justice-oriented productivity that do not serve the purposes of neoliberal capital? My answer to all of the above questions is "yes." In order to help explain my position and provide a first attempt at outlining what such a program might look like, I want to begin by glossing the current debate regarding how the social construction of race should be approached in genomic research. In doing so, I

am not suggesting that issues of race and issues of gender or sexual orientation are synonymous within the context of genomics. They are not. What I am suggesting, however, is that the conversation about race in genomic research has a longer and more developed history, and that there are theorists, like Catherine Bliss, who have offered strategies that I believe can be applied—with some modifications—to how we think about other social categories, like sexual orientation, in genomic research.

On the one hand, there are theorists like Dorothy Roberts who argue that the social category of race should be eliminated from genetic research, while, on the other, scholars like Catherine Bliss assert that race can be deployed strategically within genomic research in order to fight for social justice. Even though Roberts and Bliss come to contrary conclusions, their analysis of the benefits and drawbacks of employing race in design, implementation, and participant recruitment for genomic research projects are remarkably similar. Turning first to Roberts, she writes in her co-authored paper "Taking Race Out of Human Genetics" that we should put an end to race-based genetic research because the category of race is "so disputed and so mired in confusion" that it is being used to reify "popular misinterpretations" about race and to "fuel racist beliefs" (564-5). She points out that since race is a social construct rather than a biological reality, people who share a common racial identity are actually genetically heterogeneous and lack any clear-cut genetic signifiers. For example, people who share the social identity "black"—such as ethnic Nigerians living in Abuja, Afro-Caribbeans living in Jamaica, and third-generation Kenyan-Americans—may have vastly different ancestry as well as contrary medical risk factors, barriers to accessing health care, and cultural practices that could influence the expression of their genes. Roberts is therefore critical about the ways in

which scientists have frequently misused race as a proxy for the relationship between ancestry and genetics; as a stand-in for some unknown, observed variable; or, most problematically, as a scape-goat for the higher incidence of disease among minority populations by asserting that there are race-based genetic differences. These fundamental misunderstandings about the relationship between race and genetics have led physicians to approach patient care with the a priori assumption that black, white, and brown bodies are *genetically* different and should therefore be treated accordingly. This has resulted in the development of different BMI calculators for patients of different races because of stereotypes about who has more muscle mass; the codification of different "normal" ranges of GFR (an estimator of kidney function) for different racial groups;[95] the frequent misdiagnosis of hemoglobinopathies because certain conditions, like sickle-cell, are thought to be "black diseases" while others like cystic fibrosis are thought to be "white diseases"; and, finally, the development of the heart medication BiDil, the first pharmaceutical prescribed exclusively for black patients (565). Supporters of BiDil and other race-specific pharmaceuticals and treatments assert that these interventions will shrink the gap in health disparities between white patients and patients of color. However, as Roberts incisively points out, race-based medicine allows pharmaceutical companies to target and capitalize on the poor health of minority communities while simultaneously deflecting concerns about the health care industry's "unjust social impact and the social inequality that actually drives poor minority health" (Roberts, "Debating the Cause of Health Disparities" 339). In other words, the erroneous belief that racial

[95] For further elaboration of these two examples, see Dorothy Roberts's November 2015 Ted Talk "The Problems with Race-Based Medicine." <https://www.ted.com/talks/dorothy_roberts_the_problem_with_race_based_medicine#t-266933>.

health disparities are caused by either race-based genetic differences or race-neutral economic differences belies the fact that health disparities have their roots in social inequality.

While Catherine Bliss is just as keen as Roberts to dispel scientific claims of race-based essentialism, she argues in *Race Decoded: The Genomic Fight for Social Justice* that "those who assume that *all* racial science is biological essentialism are missing the sociological nuances of today's science of race" (15; emphasis mine). Instead of eliminating racial considerations from genomic research, Bliss contends that race as a biological category should be deployed strategically in a multi-front fight for social justice. Weaving together interviews from several genomicists who consider themselves social justice advocates, Bliss argues that

> genomic racial experts don't just expose past racial science as bunk. They proactively seek funds for research that will benefit minorities and change the way society thinks about race. . . . [They] engage with the public in ethically salient ways that build social and material capitals that permit a redefinition of the field's reputation with regard to race. (13)

This race-positive approach to genomic research begins with reflexively considering the social, political, and ethical implications of any biological research study from the moment of inquiry. Since science can never be strictly objective and value-free, the genomicists Bliss interviews actively use "their values [to] shape the formulation of research interests and questions…performing political acts even in their most basic scientific inquires. Such an overt politicization of science allows scientists to cope with a politically fraught state of affairs. This shows a clear change from earlier scientists' ethics

of a ‘culture of no culture’” (6). In practice, this includes not only making sure that basic research and clinical trials are performed on a diverse array of bodies, but also proactively using biological science to augment sociological research and political campaigns in order to draw attention to the social factors at play in the biology of race. While I argue that Bliss’s sociogenomic approach to race is overly broad and risks leaving far too much to the discretion of individual genomicists who self-identify as “social-justice oriented,” I do find value in one particular approach which falls under her rubric. Unlike racist science which naturalizes social difference as biological essentialism and perpetuates the assumption that social status, poverty, and lesser academic achievement are the result of racial inequality, I am interested in the reverse: beginning with the concept of social disparities and hierarchies and exploring the *resulting* biological differences in an effort to evaluate, document, and quantify these disparities. It is in this way that we can amass hard, scientific data to support what we already understand intuitively: that health care disparities, discrimination, and poverty affect people biologically not only through susceptibility to disease but also through gene expression. Demonstrating the ways in which racism, sexism, and homophobia actually change our biology makes a case that is particularly hard to ignore for dismantling the systemic inequalities that are producing this ultimately genomic effect.

In fact, despite Roberts’s and Bliss’s differing positions on the inclusion of race as a taxonomic category in biological research, I believe Roberts and her co-authors actually make room for this one exception when they write that, although they ultimately seek to

> phase out racial terminology in the biological sciences, . . . we acknowledge that using race as a political or social category to study

> racism and its biological effects, although fraught with challenges, remains necessary. Such research is important to understand how structural inequities and discrimination produce health disparities in socioculturally defined groups. (565)

In context, they appear to be referring to "racism and its biological effects" in terms of unequal access to medical care, greater susceptibility to disease because of poor nutrition, crowded living conditions, and poverty, or increased exposure to harmful environmental agents and chemicals. I argue, however, that the biological effects of racism, as well as sexism, homophobia, and transphobia, should be extended to include epigenetic effects. It is for this purpose, as well as the purposes of research inclusion and minority-specific health program resources, that I believe we cannot entirely eliminate social taxonomies from genetic research.

Instead of using science to search for gay origins or other a priori biological differences, I propose that we begin with a recognition of social disparities and investigate how clinical protocols, unequal access to health care, institutional discrimination, and sexual and social practices carry biological effects. By now, it is well documented that the stress of trauma, including systemic discrimination, has an effect on the expression of our genes as we have seen in genetic studies on black Americans with cardiovascular disease, the descendants of Holocaust survivors, and other minority populations.[96] As each of these epigenetic studies attest, these effects are not limited to

[96] See: Yehuda, Rachel, Nikolaos P. Daskalakis, Amy Lehrner, Frank, Desarnaud, Heather N. Bader, Iouri Makotkine, Janine D. Flory, Linda M. Bierer, and Michael J. Meaney. "Influences of maternal and paternal PTSD on epigenetic regulation of the glucocorticoid receptor gene in Holocaust survivor offspring."

the individuals who experience them, but are transmitted transgenerationally. In "Transgenerational Consequences of Racial Discrimination for African American Health," Goosby and Heidbrik explain the process of transmission by asserting that the

> biological pathways through which racism affects racial minority health can also have consequences for their offspring, potentially perpetuating the existing disparities in the next generation, in part, by the *embodiment* of inequality transmitted through epigenetic influences. In other words, stressful conditions and poor health experienced by mothers can lead to alterations in her offspring's gene expression without changing his or her genotype. These changes in gene expression can have important implications for the healthy functioning of bodily systems in mothers and their offspring. (631; emphasis original)

Given these results, I suggest we continue this line of inquiry in order to explore what other biological effects are disproportionately represented in minority communities and what effect this may have transgenerationally. In order to approach this research from a social justice perspective, we must consider the ethical, social, and political implications from the moment of inquiry and use anti-racist and anti-homophobic values to shape the formulation of research questions, study design, and participant recruitment.

While a study on the epigenetic effects of homophobic stress has yet to be done, several recent studies have found elevated rates of disease among bisexual and lesbian women. One prominent example making headlines in the *Chicago Tribune, The New*

The American Journal of Psychiatry, 171.8 (2014): 872-80. Also see: Goosby, Bridget J. and Chelsea Heidbrink. "Transgenerational Consequences of Racial Discrimination for African American Health." *Social Compass* 7.8 (2013): 630–643.

York Times, and *Medical News Today* is the higher incidence of breast and ovarian cancer. According to a 2008 research study conducted by the Stonewall Charity, one in twelve self-identified lesbian and bisexual women are diagnosed with breast cancer compared with one in twenty in the general female population, making their risk nearly double (Hunt and Fish 4). In "Lesbian Health Care Issues: Exploring Options for Expanding Research and Delivering Care," Andrea Solarz is quick to assert that lesbians or bisexual women are neither genetically predisposed to cancer nor at higher risk "simply because they have a lesbian sexual orientation" (6). They are disproportionately affected by social risk factors for cancer and face additional hurdles when accessing preventative care and subsequent treatment. For instance, doctors are less likely to offer pap smears, STD screenings, and hormonal birth control to lesbian and bisexual women because of misperceptions about their health needs. Simply referring to estrogen and progestogen supplements as "birth control" elides the ways in which hormonal regulation can benefit women of all orientations who have irregular or painful periods, ovarian cysts, iron deficiency, and bone thinning, as well as decrease the risk of developing ovarian and other cancers. Lesbian and bisexual women are also less likely to request these gynecological services either because of a cultural bias that they apply primarily to heterosexual women or because, according to Jackie Foley, "if a lesbian woman goes for a smear test and has a bad experience because of her sexual orientation, she is going to think twice about going back" (Lomas 22). The kinds of bad experiences Foley is referring to include culturally inappropriate clinic practices like using male pronouns to ask about a woman's sexual partners, asking exclusively about heterosexual practices when taking her sexual history, using paperwork with a heteronormative bias, discussing

contraceptives in a heterosexist way, or requiring her to take a pregnancy test before performing a pap smear because "we can't take just take your word for it that you haven't had sex with men."[97] In addition to these discriminatory practices which deter lesbian and bisexual women from seeking out health screenings and medical intervention, SD Cochran et al. report that lesbian women have a statistically lower incidence of pregnancy and breastfeeding (both of which provide protective antibodies against cancer) and a statistically higher incidence of poor nutrition, lack of physical exercise, and alcohol and tobacco use (591-7). Of course, as J. Rosenberg makes clear in *Family Planning Perspectives*, these social risk factors are not personal failings associated with lesbian or bisexual identity but common effects of systemic inequalities and coping mechanisms associated with homophobic discrimination. Finally, while none of these studies address epigenetics by name, many of the social risk factors they discuss are well-documented to have epigenetic effects and, as Peter Jones of the Cancer Epigenomics Lab at Michigan's Van Andel Research Institute explains, "DNA methylation changes and epigenetic silencing contribute to human cancer" (Taylor 1). SD Cochran et al. conclude their report with the assertion that "if public health is truly for everyone, the results of the current study call for developing culturally competent interventions targeted to the different risk patterns evidenced by lesbians and bisexual women" (597), while Foley emphasizes the structural changes that need to occur so that lesbian and bisexual women's needs are no longer "invisible in cancer services" both before and after detection ("A Particular

[97] This quote was said to me, by my own doctor, at the University of Minnesota Boynton Health Center during a routine pap smear visit, after being asked each of the other questions above. When I protested, the doctor changed my medical file (without my knowledge or consent) to indicate that I was a "virgin" and therefore did not require pregnancy tests. This then prevented me from accessing other services related to my sexual health, which forced me to file an addendum to my health records to correct the mistake.

Challenge" 2). For instance, she highlights the need for independent support groups for lesbian and bisexual women because many report feeling uncomfortable in traditional support groups when discussions turn to struggles with still feeling "feminine" and "desirable" to their husbands or boyfriends. All self-declared advocates for the LGBT community, Jackie Foley, SD Cochran, are Andrea Solarz are using their research to first dissociate cancer from assumptions about lesbian and bisexual biological essentialism and, second, to change heterosexist clinic practices, retrain physicians, implement culturally-targeted health campaigns, and lobby governmental agencies for funding to carry out these specific tasks.

Of course, not all queer health advocates agree on these strategies. Many have been critical of the continued efforts by the Gay and Lesbian Medical Organization (GLMA), originally established in 1981 during the early years of the U.S. AIDS epidemic, to lobby the federal government and its agencies to include sexual orientation as a criterion in biological research and to fund health campaigns that specifically address the LGBT community. The two primary charges Steven Epstein levels against organizations like GLMA in "Targeting the State: Risks, Benefits, and Strategic Dilemmas of Recent LGBT Health Advocacy" are their reliance on the "inclusion-and-difference paradigm" in their research agendas and their practice of appealing to the state and its agencies, including the National Institute of Health. Epstein warns of the risks associated in appealing to state actors as "the ultimate guarantors of equal treatment in the domain of health" and reminds us that if we solicit governmental assistance in conducting LGBT medical research we are ceding control over how that research is designed, performed, and evaluated (158). Not only does the state itself have a history of

programmatic LGBT discrimination but, arguing along the lines of Dorothy Roberts, Epstein contends that medical research performed on queer bodies tends

> toward the reification of sexual identities, the conflation of behavior and identity in the determination of health risks, the conceptualization of difference as pathology, the playing down of sexual topics and side-stepping of non-normative sexual practices, and the valorization of professionals and simultaneous inhibition of community participation in research design and interpretation. (150)

Epstein's fear that state-based medical research will reinforce queer biological essentialism is a legitimate one, as is his concern that involving the state in its research agenda could be misread as an attempt to use the state as the "ultimate guarantor of equal treatment." Certainly, this intersects with Judith Butler's concern in *Undoing Gender* about treating the state as a legitimator of queer rights or relationships, which demands homonormative conformity through the institutions of marriage, family, and responsible citizenship. Like Epstein and Butler, I view state legitimation of queer existence as anathema to any responsible queer theory and will continue to decry any misrecognition of the state as—in Wendy Brown's words—"provider, equalizer, protector, or liberator" (1995, 196). That said, I do not believe, as Epstein does, that either opting out of biomedical citizenship or limiting our biomedical engagement to grassroots campaigns in the private sector holds any greater promise. Fearing that institutionalized, professional researchers, policy makers, and lobbyists do not represent "the best interests of all sectors of the community in the same way as other political actors," Epstein suggests that the queer community withdraw from all state programs that seek to "find, count, study, and

compare" them with their hegemonic counterparts (158). Instead, he suggests leaving medical interventions and minority health campaigns to queer, grassroots organizations because they tend to stay most faithful to the community's own interests and answer solely to the community itself. While, certainly, these non-profit organizations are helpful political actors, it cannot be ignored that they rely on funding from wealthy donors and large corporations whose purse strings are often tethered to their own corporate interests, including pedaling their own medical tests and pharmaceuticals to the queer community. In fact, the Gay Men's Health Summit, which Epstein touts as a favorable example of a community-based LGBT organization, is sponsored by Gilead Sciences, the pharmaceutical company that manufactures Truvada® for PrEP, an antriretroviral medication used to treat and prevent HIV/AIDS. In fact, on the Summit's website, it proudly proclaims "A Special Thank-you to our Gold Community Partner: Gilead Sciences" next to an image of the company's logo and a link to its website. Truvada® PrEP was also a popular topic at the Summit's 2016 Conference, which featured several panels and research studies conducted on the pharmaceutical. In addition to the Gay Men's Health Summit, Gilead Sciences sponsors numerous other LGBT non-profits including Gay Men's Health Charity, Act-UP-Paris, and the AIDS Foundation East-West, as well as developing its own charitable program, the Truvada® for PrEP Medication Assistance Program. It is no coincidence that Gilead Sciences sponsors primarily LGBT medical organizations that prescribe its products to their members, who are the corporation's target consumer base. To untangle these non-profit organizations—and the work that they do—from the interests of global capital would be impossible. So, while I concede the state's long history of eugenic participation and the many problems inherent

in even strategic appeals to the state for queer inclusion, I believe I have shown throughout this project that the private sector is equally as problematic, if not more so. It is driven by the logic of neoliberal capitalism which is absolutely anathema to any form of health sustainability, preventative medicine, ethical reform, or the remediation of health disparities. It thrives on de-regulation and offers even fewer patient and consumer protections than the state. Moreover, if the examples of Simon LeVay and Dean Hamer are any indication, our identity as queer people—or our affiliation with queer organizations—does not make us any less immune to pursuing research agendas that could hurt our own interests if we do not carefully consider the social implications of our work from the moment of inquiry. In my view, just because it is difficult to design a social-justice oriented queer research agenda does not mean that we should not try. To suggest, as Epstein does, that sexual orientation not be included as a data template in the government's decennial *Healthy People* program is to choose not to contest the systemic inequalities that negatively affect our health and to leave money on the table which will inevitably revert back to hegemonic interests. Since the stated objective of *Healthy People* is to "identify the most significant preventable threats to health and establish national goals to reduce these threats" in order to "increase quality and years of healthy life and eliminate health disparities" (HealthyPeople.gov), I propose that we participate and fight for our interests. To do otherwise is to leave unchallenged the default, white, cisgender, heterosexual male who is the de-facto healthy subject for whom the program is designed to advocate. Moreover, I fear that by withdrawing from state-sponsored initiatives and turning to the private sector or LGBT organizations that rely on corporate donations, I fear we are turning ourselves into a population that can be targeted *through*

difference. In other words, opting out for fear of reinforcing the "identity-and-difference" paradigm does not contest queer essentialism but, on the contrary, risks enshrining difference by asserting that we must handle our health ourselves. Is that not the ultimate act of identitarian difference?

In the final paragraph of Epstein's essay, he asks the question: "How can the risks of cooptation by state bureaucracies best be avoided?" (159). In context, the question appears rhetorical, but I argue that by adopting and revising some of the strategies Bliss outlines in *Race Decoded*, along with a few of my own, we can develop a working program. As researchers of all stripes defining our agenda, we must consider the social, ethical, and political implications of our work from the moment of inquiry and use our values to help us construct research questions. To avoid propagating sexual essentialism in particular, we must leave behind the problematic search for gay origins and, instead, research the reverse: how social factors that disproportionately impact queer people ultimately affect us biologically. Using hard science to study the biological consequence of systemic inequality makes a compelling case for their amelioration and, potentially, attracts political actors, resources, and financial capital to our cause. If we are going to appeal to the state, universities, or corporations for funding, we must thoroughly examine any potential conflicts of interest and make educated choices in choosing which projects, and which agencies, to affiliate ourselves with. The state is not a monolithic entity, and some agencies are better suited to anti-heterosexist research than others. In each situation, we must weigh any potential conflicts of interest against the consequences of opting out, such as forsaking resources and representation. When it comes to participant recruitment, we must strategize how best to challenge a white, heterosexual, cisgender "neutral" and

test drugs and procedures on a diverse range of bodies. It is the only way to discover possible correlations—not with sexual orientation directly—but with factors that disproportionately affect sexual minorities. Moreover, as potential study participants, before agreeing to take part in an experiment, we must ask similarly informed questions: Who are the researchers? Who is funding the study? What is the study's objective? How is sexual orientation (or gender or race) being used? Does the study differentiate between practices and identity? It is in this way that queer researchers and the queer community can work together to serve their shared community. For instance, the recent push to investigate the higher rate of cancer among lesbian and bisexual women has resulted in increased research on sexual minorities' gynecological health, more spending on health programs targeted towards sexual minorities, the re-training of physicians, and changes in clinical policies to make them more culturally relevant. And, due to the diligent way in which researchers like Solarz, Foley, and Cochran separated queer identity from the social risk factors at play in cancer research, they avoided the risk of ideological cooptation such as the push to eliminate a "gay" or "lesbian" gene because "they're at higher risk for cancer," and instead created meaningful change in health care policies that affect lesbian and bisexual women. Moreover, since the end product of this basic research was policy reform rather than a patent or pharmaceutical, it largely avoided capitalist cooptation (no trendy commodity to purchase) while being productive in terms of social justice. In fact, by focusing on how to prevent cancer rather than treat it, these research studies actively work *against* the logic of capital. And while these researchers did appeal to the government for financial resources and policy changes, they did not do so in the way that Butler or Sedgwick protest: they did not seek state legitimation for queer

relationships nor did they use essentialist appeals to science to justify queer existence. Moreover, this mode of justice-orientated biological research creates the foundation for a strategic alliance across sexual diversity—which is a form of queer kinship—but not one based on biology, reproductive futurism, or the creation of nuclear families. We are not using biomedical procedures to create biological kin but, instead, using the biomedical research on queer bodies to, collectively, make a political claim for the elimination of systemic inequalities and the improvement of the health of queer communities. It is in this way that new biogenetic research can deviate from its predecessors to work with, rather than against, cultural diversity and queer difference.

Queer relationality will be central to this mission. Just as I do not believe that we need to withdraw ourselves from biomedical research agendas, so I do not believe that we need to resort to queer negativity and eviscerate ourselves and our social bonds in order to be defiant. By putting Mari Ruti and Edith Ellis, two queer theorists writing one century apart, in conversation with one another, I argue that we can begin to see the makings of a theory of radical queer kinship centered on Ruti's reading of the Lacanian ethical act which is performed not for oneself, but in the name of one's relational ties. This ethical act is driven by a steadfast commitment to one's desire in the real which is sustainable and thus disrupts the performance principle's capitalist imperative. Ellis saw precisely this resoluteness of desire in the culturally productive sexual invert, except, whereas she suggested that we could harness this distinctly queer creativity for the nation-state, I propose that we instead strategically deploy the resources of the state and the laboratory to chip away at capital's systemic inequalities.

Since Lee Edelman's provocative use of the Lacanian ethical act to support his thesis of queer futurism in *No Future: Queer Theory and the Death Drive*, the Lacanian ethical act has become almost synonymous with queer negativity. Calling this a misreading of Lacan in *The Ethics of Opting Out*, Ruti advances a theory of the ethical act not as individualistic or self-shattering but as relational and community-building. The defiant Lacanian subject is, in her words:

> not invariably a subject who severs its relational ties in order to exit the symbolic through a self-destructive act; often it is a subject who resists the hegemonic symbolic *in the name of* its relational ties, in the name of an other—or others—who is so deeply valued that the subject is willing to risk its own viability for their sake. The key point—one that both Zizek and Edelman tend to lose track of—here is that there is a difference between the Other as a hegemonic collective social formation and the universe of intersubjective others: the defiant subject may well wish to reject the Other without wishing to discard (all) intersubjective others. . . . This is why reading the Lacanian ethical act as one of "antisocial" (or "antirelational") rebellion can be somewhat misleading. . . . [T]he act is often undertaken in order to rescue antinormative versions of sociality and relationality from the pressure to normativize them. (43)

In order to provide a concrete example for what she means, Ruti returns to Butler's reading of *Antigone*. After all, Antigone does not defy Creon for her own sake but for that of her deceased brother Polyneices. Her defiant act is not a futile, self-shattering act of queer negativity but a politico-ethical statement about the importance of relational ties

and staying loyal to them even when confronted with persecution. In defying a repressive power structure dominated by what Marcuse refers to as the performance principle, Antigone demonstrates respect for the vulnerability of the other and refuses to have her desire manipulated in order to serve the performance principle. Defined by Marcuse in *Eros and Civilization* as the prevailing form of the reality principle, the performance principle is the "violent and exploitative productivity which made man into an instrument of labor" to perpetuate the conditions of social domination (190). It relies on surplus repression to manipulate our libidinal instincts so that man "desires what he is supposed to desire," all the while becoming alienated from both his labor and his instinctual desires (35). It is in this way Ruti suggests that there are degrees of freedom, that

> some of our desires are more primary than the desires driven by the performance principle. Such primary desires—desires that touch the subject's fundamental fantasies—reach towards the rebellious drive energies (jouissance) of the real rather than the conformist symbolic, which is why the subject's capacity to animate them is essential for its ability to defy the hegemonic decrees of the latter. (64)

In other words, if we are able to resist the performance principle's surplus repression, we can access that kernel of a deeper or more authentic desire lying underneath. It is not that this deeper desire is untouched by culture but, rather, that it is subject only to normal repression and does not serve the capitalist imperative of the performance principle. This desire is sustainable and relational, rather than commodifiable. In fact, the notion of sustainability itself is antithetical to the capitalist drive for accumulation which necessitates that we continually discard our objects in order to make room for new ones.

It is precisely this insistent, singular desire, Ruti argues, that drives the Lacanian ethical act. She asserts:

> the truth of desire, as Lacan conceptualizes it, arrests the incessant movement of desire that capitalism relies on: the subject who decides that "only this object will do" forsakes all alternative objects, thereby refusing to participate in the mentality that tells us that every object is disposable, that in fact encourages us to discard our objects almost as soon as we have acquired them. Such a subject of desire stubbornly fixates on a specific object in ways that thwart capitalism's demand that we glide from one object to the next in a frenzy of consumption. . . . [T]he populations that took up arms to liberate themselves from colonial rule, the proponents of the civil rights movement, the imprisoned suffragettes who were force-fed through tubes crammed down their throats . . . all had/have one thing in common: they were/are no longer willing to give ground on their desire in order to please the Other. . . . [A]ccording to the interpretation that I have advanced, any subject who resists normative forms of desire by choosing to pursue the thread of its distinctive desire qualifies as a defiant subject in the Lacanian sense. (78-9)

Of course, our desires can never exist entirely outside of culture. Still, there is a distinction to be drawn between the kinds of desires that support the performance principle and those that respond to what Lacan calls "the loss of the Thing," or between mass-generated fantasies and the "singular cadence . . . of fantasies in the real" (84). Resisting dominant forms of desire and insisting on our specific fantasies might open up

new ways of crafting, realizing, or living out our individual narratives of desire. The fact that our desires are subjective means that there can be no prescriptive model of desire to which we all should subscribe. Rather, it is up to us to determine our own desire and hold fast onto it, refusing to be swayed by those who would ask us to transfer our desire to more suitable objects that serve the performance principle. It is in this way I envision queer kinship outside of the mass-generated fantasies of the upright citizen or the homonormative family and find it, instead, in the intersubjective ties that connect us to political communities on behalf of which we are willing to act in rebellious ways.

It is precisely this steadfast commitment to our own desire that I believe Edith Ellis was grappling with when outlining her model of spiritual parenthood. Even though she was somewhat limited by normative constructs (including the term "parenthood"), Ellis's argument was radical in its assertion that queer people have a privileged relationship to creativity and should be allowed to live out their desires on their own terms. Of course, we now know that same-sex desire is not hereditarily linked with nervousness or creativity; it is simply that queerness (as non-normativity) may provide an avenue for tapping into those desires that do not respond to the performance principle. In an effort to convince her peers of the importance of queer desire, Ellis envisioned it helping the nation-state and thus linked it back up with the performance principle.

Her limitation is that she failed to distinguish between the performance principle and use-value. Something may have use-value without being subject to commodification or being useful for capital. In fact, it is the sheer *uselessness* of most commodities that allow them to serve the capitalist system. The kind of biomedical research and sustainable, queer kinship formations I propose in this project have the potential to serve

the collective good without being co-opted by capital. It is in this way that I believe we can learn from Ellis, but move beyond her by finding ways to tap into our transgressive desires and commit ethical acts without allowing them to serve the performance principle.

In 1914, Ellis was writing at a time of significant social upheaval. On the brink of the First World War, a confrontation was happening between capitalism and socialism, between individualism and social collectivism, between greater gender equality and the reification of gender roles, between Victorian moralism and sexual rebellion, and between science and religion. In the aftermath of the Allies' victory came a renewed faith in Enlightenment values, capitalist idealism, and the reification of gender and sexual norms. In the early twenty-first century, we are again at a precipice. With the rise of neoliberal capitalism, conservative politics, eugenic ideology, and regressive policy reforms, from Brexit to the executive orders of President Donald J. Trump, history is poised to repeat itself. In an effort to prevent the next eugenic wave from playing out as the last one did many decades ago, it is up to us to resist. I argue that one prong in our multi-front strategy should be holding fast to our deeper desires in the real and performing ethical acts in the interests of our intersubjective ties to one another.

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